

Aussie fabricator shores up heaviest vessel handler



ASI fabricator member, RPG Australia played a major role in the fabrication, assembly and installation of the largest shiplift facility in the Southern Hemisphere at Techport Australia in Adelaide.

Techport Australia is a South Australian Government owned and operated facility, developed to assist ASC build the Royal Australian Navy's (RAN) next generation \$8 billion Air Warfare Destroyers (AWDs) and attract future naval shipbuilding and repair opportunities to the State.

The massive Syncrolift® shiplift dominates Techport Australia's Common User Facility (CUF) also comprising a vessel transfer system and wharf at Osborne.

The CUF has been designed to facilitate the building and repair of a number of vessels simultaneously and also has the ability to support multiple prime contractors. Rolls Royce Naval Marine was awarded the \$50 million contract to design and build the shiplift in December 2006 and it was delivered within three years, on-time and on-budget.

Regional Manager (Australia, New Zealand, Malaysia) at Rolls Royce Australia Services Naval Marine Division, **Judd Smith** said that while the original brief was to deliver a shiplift with a lift capacity of up to 9300 tonnes for the RAN's new AWDs, the platform also had to be designed to Panamax width of 32 metres to enable accommodation of larger vessels.

"Provisions were made within the contract for upgrading the capacity of the shiplift by lengthening the platform to accommodate the Navy's new (LHD) amphibious vessels currently under construction in Spain," Mr Smith said.

Rolls Royce partnered with a number of Australian businesses to build the 156 metre-long Syncrolift® which includes the ship transfer

system from Norwegian company, TTS that will move vessels between the shiplift and maintenance/build berths on shore.

As the prime sub contractor for the project, RPG project managed and manufactured the platform and hoists, designed by Rolls Royce, the transfer system, designed by TTS, and carried out the onsite consolidation and final installation. RPG also assisted Rolls Royce with the load testing and commissioning.

The platform required approximately 2700 tonnes of steel, the hoists about 420 tonnes, both in plate and section, and the transfer system consisting of both trolleys and trestles required around 440 tonnes of steel plate, all originating from Australian mills. All plate was 350 L15 and L20 XLERPLATE® whilst section was 300-Plus.

Over 100 tonnes of additional steel was also used in the temporary works system to initially install the platform into position and recycled after the platform was in place.

Peter Hall, RPG's Project Manager said the material grades were nominated by the designer of the structures or used as equivalent or higher grades to those specified to Lloyd's standards.

He said the company went to great lengths to ensure that quality was assured from the selection of materials right through to erection and testing onsite.

"We subcontracted all machining and a portion of fabrication to approved companies but generally most of the work, including painting and assembly was carried out by and within our premises," Mr Hall said.

The massive scale of the project presented a number of unique logistical challenges for RPG as the design of the individual modules that comprise the platform structure were too large to transport on the road as completed units.



The Shiplift project team (L to R) **Garry Beck** (RPG installation crew), **Gareth Hose** (RPG Site Manager), **Peter Black** (RPG Group Business Development Manager), **Bernie Dobson** (Rolls Royce), **David Swinton** (RPG installation crew), **Mike Lewis** (RPG Managing Director) and **Peter Hall** (RPG Project Manager).

have been more susceptible to movement from environmental conditions such as wind and tides."

Other solutions brought to bear by RPG entailed encapsulating all blast material so as not to impact the adjacent aquatic environment as well as sourcing suitable ecology-friendly products to use as grease on the wire ropes and fill the 35,000 countersunk holes in the timber decking.

"The use of purpose-built canopies for blasting and painting helped achieve the structural integrity of the paint system by providing a barrier against the harsh environmental conditions encountered," he said.

"The use of polythylene stripping placed against the paintwork whilst transporting modules and installing into the basin was also initiated to minimise paint damage due to installation activities."

The platform is moveable via the raising and lowering of 40 of synchronous hoists. Each main transverse beam has a hoist with wire rope connection at either end allowing this to occur.

"The approaches taken provided real measurable and successful results that contributed significantly to the achievements of both timeframe and budget," Hall said.

The Techport Australia Common User Facility was officially launched by South Australian Premier, **the Hon. Mike Rann MP** on 15 February 2010.

RPG therefore split the manufacture of each module into three main components consisting of the main transverse beams, each weighing over 80 tonnes, two off-site fabricated modules in excess of 22 tonnes each, and numerous other loose sections averaging 10 tonnes a piece. The main transverse beams measure approximately 38 metres in length by 3.6 metres high.

"We designed and manufactured specialised equipment for the fabrication, painting and transport to site of these beams, without which some tasks would not have been possible," Hall said.

"The 22-tonne modules needed to be made in sections to allow blasting to be carried out in our own facility. These were then welded together and finish painted as one."

Consolidation of those components was then carried out onsite by RPG's crew. RPG also designed and manufactured two large relocatable paint booths to enclose the completed full-size modules, allowing onsite blasting and painting of the modules.

The two covers allowed for one complete assembled module to be blasted and painted while the other cover was being set up on the next module. These covers contained the blasting product and paint fumes which also allowed painting to continue in adverse conditions.

Mr Hall said the completed modules themselves presented a challenge for installation onsite.

"This was overcome by designing and building equipment to move each module on specially made bogies to the basin, transferred to a hydraulic jacking system on bogies and temporary tracks, rolled into position and lowered into place," he said.

"This method worked very well and allowed the installation to be carried out without the use of major cranes and barges that would

Project Team

- Design:** Rolls-Royce Naval Marine Inc and TTS
- Project Management:** Rolls Royce Australia Services
- Steel fabrication:** RPG Australia
- Installation:** Rolls-Royce and RPG Australia
- Steel detailing:** RPG Australia
- Steel supply:** BlueScope Steel (plate) and OneSteel (section)
- Coatings supplier:** RPG Australia and Hempel Coatings