



# AMC FLOATING DOCK

## STRATEGY FOR SUCCESS

**MAIN CONSTRUCTION COMPANY :** Strategic Marine Pty Ltd  
**DEVELOPER / CLIENT :** Western Australian Land Authority  
**PROJECT MANAGER :** Kalevi Savolainen  
**PROJECT END VALUE :** \$63million  
**COMPLETION :** July 2009  
**ARCHITECTS :** Clark and Stanfield (UK)  
**ENGINEER (STRUCTURAL / CIVIL) :** Clark and Stanfield (UK)  
**SURVEYOR :** Bureau Veritas



The world's most technologically advanced floating dry dock; a 99m long by 53m wide structure capable of providing the land transfer of vessels up to 3,500 tonnes and able to lift 12,000 tonne vessels out of the water for service and maintenance work; the injection of billions of dollars into Western Australia's economy...sound ambitious? Fortunately dynamic Western Australian shipbuilder Strategic Marine were awarded the contract to build the Floating Dock at the Australian Marine Complex (AMC) at Henderson, south of Perth, so ambitions can be well and truly met.

Strategic Marine is an innovative Australian-owned shipbuilding company with an international outlook and a rapidly growing reputation for producing quality, high performance vessels for markets across the globe. In 2006-08, Strategic Marine consolidated its position as a global shipbuilder by winning 125 new orders worth over US\$230million. Less than a decade after its incorporation, the company has established shipyards in Western Australia, Singapore, Vietnam and Mexico - employing over 1,600 staff.

Strategic Marine constructed the base pontoon for the AMC Floating Dock at their 135,000m<sup>2</sup> Vietnamese facility at Dong Xuyen Industrial Zone. The dock base was then lifted aboard the Dockwise submersible vessel MV Teal for its 16-day journey to the AMC's Common User (CUP) facility at Henderson, with the Teal submerging to float off the structure before it was towed into the facility by three tugs.

A project team of over 20 technicians, engineers and contractors at Strategic Marine's yard at Henderson were well-prepared for the 840 tonnes of superstructure to be fitted onto the dock's base at the AMC. Project Manager Kalevi Savolainen said his team had two months to install the superstructure – the touchscreen computer equipment, generators, fuel tanks, topsides, side walls and cranes. "After that, we had about four months to ensure that all of the machinery functioned properly and that the computer system worked perfectly," said Mr Savolainen. "We had one month to get the dock fully functioning before handover in late 2009, so this last month was spent practicing, driving it up and down and moving it about the place," he said. "For the whole project, we've been on schedule, and that is the highest priority," he said.



When the \$63million dock was formally commissioned into service to the AMC in late 2009, it achieved a global "first" with a newly developed digital memory to give it a fully automated capability. Developed by Californian company IDAC West, this smart technology will allow the AMC to bid for a range of major construction and repair projects across the marine, defence and resources sectors, which is expected to inject billions of dollars into the WA economy over the next 25 years.

Strategic Marine, which was founded only seven years ago, has rapidly evolved into a global shipbuilding player. Over this time the company has developed a speciality in aluminium vessels, producing more than 330 quality craft, including government high-speed patrol boats for numerous governments, offshore oilfield service vessels and commercial/fishing boats. Recently, the capabilities of its Vietnamese yard have seen the shipbuilder branch into the construction of larger steel vessels.

Strategic Marine's growing portfolio now positions the company to offer larger, purpose-designed steel vessels such as the two 143m Dive Support Vessels ordered recently by Singapore company Marfield Limited. Strategic Marine also offers maritime solutions to clients, including refit and repair, project and finance, management, and training and logistics services. The company is committed to continuing their strategy of expanding further into global markets as new business opportunities arise.

Strategic Marine has won a slew of industry and business awards this year, with its chairman and founder Mark Newbold recently receiving the Ernst & Young Australian Entrepreneur of the Year Award in the Products Category with the company also winning the Australian Chamber of Commerce Vietnam Business Excellence Award.

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up to 80 metres in length. It is recognised as the largest ship repairer and maintainer in Western Australia and has also undertaken heavy fabrication work for oil and gas and resource sector clients.

The System Operations Unit is specifically structured to meet customer requirements for “turn-key” communication systems and has a proven track record of designing, assembling, installing and providing support services.

Certified by Lloyds Register against ISO 9001, the Henderson facility is operated by a highly trained workforce with global reach-back to specialist services located throughout the world at other BAE Systems sites.

The AMC floating dock is the most technologically advanced in the world and together with BAE Systems’ own shiplift, (capable of lifting 8,000 tonnes) these adjoining facilities offers customers a much larger capability, increased capacity and a wider range of services.

BAE Systems is Australia’s largest defence company and offers the Australian Defence Force (ADF) and security customers total capability across the aerospace, land, maritime and joint domains.

The company combines key skills in engineering and systems integration and employs more than 6,000 people who support customers at 70 locations. From its Henderson base in WA, BAE Systems is focused on providing services to the naval, commercial maritime, and oil and gas sectors.

**BAE SYSTEMS AUSTRALIA**

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# HEAVYWEIGHTS OF SHIPYARD SERVICING

**B**AE Systems Australia was contracted by AMC Management Ltd of the Common User Facility (CUF) part of the Australian Marine Complex (AMC) to provide Shipyard Services for the Floating Dry Dock. The Company was selected primarily for its experience in docking naval, paramilitary and commercial vessels over many years.

The 99 metre by 53 metre dry dock, officially launched in February, can lift vessels weighing up to 12,000 tonnes out of the water and facilitate water-to-land transfer of vessels up to 3,500 tonnes. The dry dock can be raised out of the water with a vessel in approximately 1.5 hours.

BAE Systems personnel include the Dock master to supervise dockings and transfers, a crew to man capstans, handle haul-in lines and other equipments used to safely dock a vessel. Other tasks include setting up the roadway, cradles and blocks to prepare the dock for vessel dockings. The docking team of up to 10 personnel dependent upon the size of the vessel will handle the mooring and manoeuvring lines for dock and will connect/disconnect the operational services when the vessel is in its lay-up position.

BAE Systems’ comprehensive maritime capability offers customers engineering and planning for dockings and stability calculations, and revision and modifications to suit the floating dock and transfer configuration. If required, BAE Systems can prepare project specific plans for a docking evolution; liaise with the ship’s designer, naval architects, Classification Societies and surveyors.

BAE Systems Henderson dockyard is conveniently located next to the CUF and occupies some 140,000 square metres including undercover fabrication facilities. The company has a strong history in the design and manufacture of paramilitary boats, fishing boats and utility vessels





## THE FIRST NAME IN FABRICATION

## FOR THE BEST FITTING COAT

With an impressive reputation over a 30 year period, Contract Marine Coatings (CMC) once again proved their expertise in overcoming major challenges while working on the Floating Dock project at the Australian Marine Complex in Henderson, WA.

A WA owned and operated company, CMC specialise in the surface preparation and application of Marine and Industrial Protective Coatings through 3 operating Divisions: Commercial and Industrial, Defence and Marine and Architectural.

CMC have been involved in the Floating Dock project for over 12 months, with an intense period from April 09 to November 09 operating 2 shifts of approximately 10 people per shift, night and day, utilising 4 Blasting units. The scope of work involved providing Abrasive Blasting along the weld seams and application paint coatings to specification.

Humidity in the tanks, buffeting from high winds and the issues of ventilation and scaffolding restraints presented the CMC team with interesting challenges to overcome on the project.

The primary work involved the blasting and painting in the perimeter welds of the Ballast Tanks; the secondary work involving blasting and painting the internal side walls of the of the Ballast Tanks and continuing work in assisting with maintenance coatings.

All well within CMC's capabilities, which include abrasive blasting and industrial coatings; architectural and steel furniture; hull fairing and painting of vessels; preparation and painting of vessels; project management and project encapsulation.

CMC operates facilities at Henderson WA, which includes a 1600m<sup>2</sup> workshop facility with a 5 ton overhead crane, as well as blast room, paint booth plus a 3000m<sup>2</sup> Blast Block facility at Naval Base WA to accommodate large structures. CMC are able to work on-site with 8 mobile blasting plants, maintenance vehicles and extensive support services for environment, access and containment issues.

CMC's flexibility to adapt to evolving work conditions has led to their outstanding project portfolio which includes MT Cape Arid, Narrows Rail Bridge, Divex Deep Dive Chambers, HMAS Anzac Class Patrol Vessels and refits to HMAS Frigates in both Perth and Sydney.



### CONTRACT MARINE COATINGS

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Based in Henderson, on Western Australia's prominent commercial coastline, Phillips Engineering is a steel fabrication and general engineering business with a strong team and a firm management structure. The original company was established in 1964 and was subsequently sold in March 2001 to KEP Management Services Pty Ltd.

The company have developed an excellent reputation for efficiency, reliability, quality and workmanship. They proudly run two large workshops which are used for structural steelwork, platework, equipment fabrication and repair, ably servicing the mining and mineral processing, oil and gas, petrochemicals, grain handling, water treatment plants and marine maintenance. Phillips Engineering provides a range of fabrication services including project management and procurement, fabrication, N.D.T. inspection and certification, protective coating, transportation and maintenance.

The AMC Floating Dry Dock project for the Australian Marine Complex in Henderson, Western Australia has given Phillips Engineering the opportunity to construct a large portion of the world's most technologically advanced dry dock system. Phillips constructed and installed six topside modules measuring 35m long by 4.5 metres wide and 5.9 metres high, the complete Control House incorporating the Dockmasters office, access gangway and gear driven flying gangways and numerous other associated items. The modules were constructed, painted and transported on a multi-wheel platform trailer from one of their two workshops to the Australian Marine Complex, where two crawler cranes walked the load onto the wharf for fitment.



The main challenge for this experienced company was working from the wharf to the Dock floating on water, but all obstacles were overcome with the interaction of strict planning and the latest digital laser technology.

Versatile and spirited, Phillips Engineering has a highly experienced team who enjoy working on any job, whether large or small, and look forward to all future complex challenges.

### PHILLIPS ENGINEERING

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Onboard the AMC Floating Dock, WA

## HANDLING THE PRESSURE

From the hydraulic system design and manufacture, to installation and the repair and servicing of complete hydraulic systems, Fremantle Hydraulics offer an end-to-end hydraulic service for the marine and industrial hydraulic industry.

Fremantle Hydraulics provide services for both simple and complex hydraulic applications on or off-site to the marine industry and are currently contracted to work on the impressive Floating Dock at the Australian Marine Complex in Henderson, WA.

As the Hydraulic Sales, Services and Installation contractor, the company supplied and installed the Hydraulic Grounding Support System on the Floating Dock which included the supply 4 x 500tonne hydraulic cylinders, 1 x electric hydraulic power unit as well as installation and commissioning services.

From their fully equipped Fremantle based workshop the company is well-equipped to over see all aspects of major projects including the design, assembly, components and onsite installation procedures as well as repair, overhaul and testing of the hydraulic components associated with deck cranes and steering systems for tug and supply vessels.

With a 'working lifetime' in the hydraulic industry, Fremantle Hydraulics directors Rob and Charlie Tranchita have a clear objective to constantly improve their services and facilities and have invested in the latest

computer aided design and manufacturing technologies, to ensure the highest precision and simplest design configuration is achieved.

The company also developed their on-site 'Nutcracker' which provides efficient automated hydraulic component dismantling and assembly of large hydraulic cylinders; to ensuring downtime is kept to a minimum.

The Fremantle Hydraulics project list is as impressive as their credentials, and the Total AMS Jack Up barge, the Gorgon Project, the 15m Mackenzie Tugs, work for Industrial & Marine Winch Hire, Viking Moorings offshore BHP project, Mermaid Maine Australia and hydraulic services and repairs for Australian and world wide Offshore companies such as Van Oord, Boskalis Australia, Marine & Civil and the Royal Australian Navy.

### FREMANTLE HYDRAULICS

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AMC Floating Dock from shore, WA