

# AUTOMOTIVE CENTRE OF EXCELLENCE

**BUILDER :** Probuild  
**CLIENT :** Kangan Batman Institute of TAFE  
**PROJECT MANAGER :** Coffey Projects  
**STRUCTURAL & CIVIL ENGINEER :** Robert Bird & Associates  
**QUANTITY SURVEYOR :** Donald Cant Watts Corke  
**BUILDING SURVEYOR :** Gardner Group  
**ARCHITECT :** Gray Puksand  
**PROJECT END VALUE :** \$50 Million  
**COMPLETION :** September 2011



## BUILT FROM EXCELLENCE FOR EXCELLENCE

After more than half a century of dedicated service, the Kangan Batman Institute of TAFE remains Victoria's major training provider for the automotive, aerospace, polymer and transport industries. Stemming back as early as 1925, the institute was named after John Batman, an early Australian pioneer and businessman who became one of the founding fathers of the city of Melbourne.

Stage Two of the Automotive Centre of Excellence (ACE) at Docklands is the latest at Kangan's newest campus. This \$50 million development delivered by Probuild, a construction firm known for its acumen, integrity and years of industry experience. The ACE serves to consolidate all of Kangan Institute's automotive training onto one site which, together with new state-of-the-art technology and equipment, will cement its place as a landmark centre of automotive learning, research and development.

"The ACE is poised to become one of the largest and most advanced automotive training facilities in the Southern Hemisphere," said Project Manager Quentin Howell. "The Ground Floor features the latest in specialist technology including a series of dynamometers used to

measure the force, torque and power of a vehicle. The ACE is the first facility in Australia to possess such a broad range of "dynos" for testing trucks, coaches, all-wheel drives and motorcycles as well as an outboard motor testing pit, all under the one roof."

The first floor features more academic amenities such as training rooms and libraries, while the second floor houses various mechanical workshops dedicated principally to auto electrical, air conditioning, engines, transmissions and fuels, and all of these areas have access to adjacent learning spaces.

Victoria is the hub of the Australian automotive industry. It is home to three of the four vehicle manufacturers, more than half of the industry's jobs, 58% of its production, and more than 54% of its exports. Due to the presence of local industry, it was imperative that, together with the project team (led by Coffey Projects and Gray Puksand), Probuild incorporate these elements into the architecture. The ACE creates a connection between workshops and training rooms, integrating both education and training all on the one precinct.

Gray Puksand, Robert Bird Group, Proactive Consulting Engineers and CR Knight have designed this latest addition to the Docklands campus not only to be a world-class educational facility, but as a significant example of environmentally sustainable design. The ACE features an advanced rainwater retention and harvesting system, mechanical louvers that regulate ventilation and approximately 800m<sup>2</sup> of workshop and open space areas for use by industry partners. Special provision has also been made for emission testing of all vehicle types within the workshops. Thanks to Probuild and the design team, the ACE will receive a 5 star Green Star rating from the Green Building Council of Australia, one of only a handful in the country for this type of building.

However, things have not all been smooth sailing. Probuild encountered their fair share of challenges, some of which occurred before construction had even begun. "Unfortunately, we started off with a partially contaminated site," said Mr. Howell. "After driving piles roughly thirty metres deep, we discovered the site contamination was worse than anyone had anticipated. We came up with a methodology to decontaminate this section of the site while working around existing

piles and pile caps, working closely with our contractors and consultants to ensure the health and safety of all site workers and end users, and in a way which also minimised delay and additional cost to the client."

Since its inception in 1987, Probuild has successfully delivered dozens of large-scale projects including the iconic Print Centre for The Age at Tullamarine, the recently-completed Myer Melbourne Redevelopment and the prestigious Grandstand at Flemington Racecourse. Probuild's work on the Chadstone Shopping Centre recently won a slew of awards, including the 2010 Master Builders' Association of Victoria Award for Excellence in Construction.

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# A TRIUMPH OF FORM & FUNCTION



Every year the Kangan Institute builds the skills of more than 40,000 students seeking practical, accredited training, making it one of Victoria's leading providers of TAFE education. Located on the southern edge of the Melbourne CBD, the Automotive Centre of Excellence at Docklands is the Kangan Institute's newest campus.

Spanning four floors and housing the latest equipment and training facilities, the Automotive Centre could not have been completed without the tireless efforts of I & D Constructions, specialists in formwork and suspended concrete slabs.

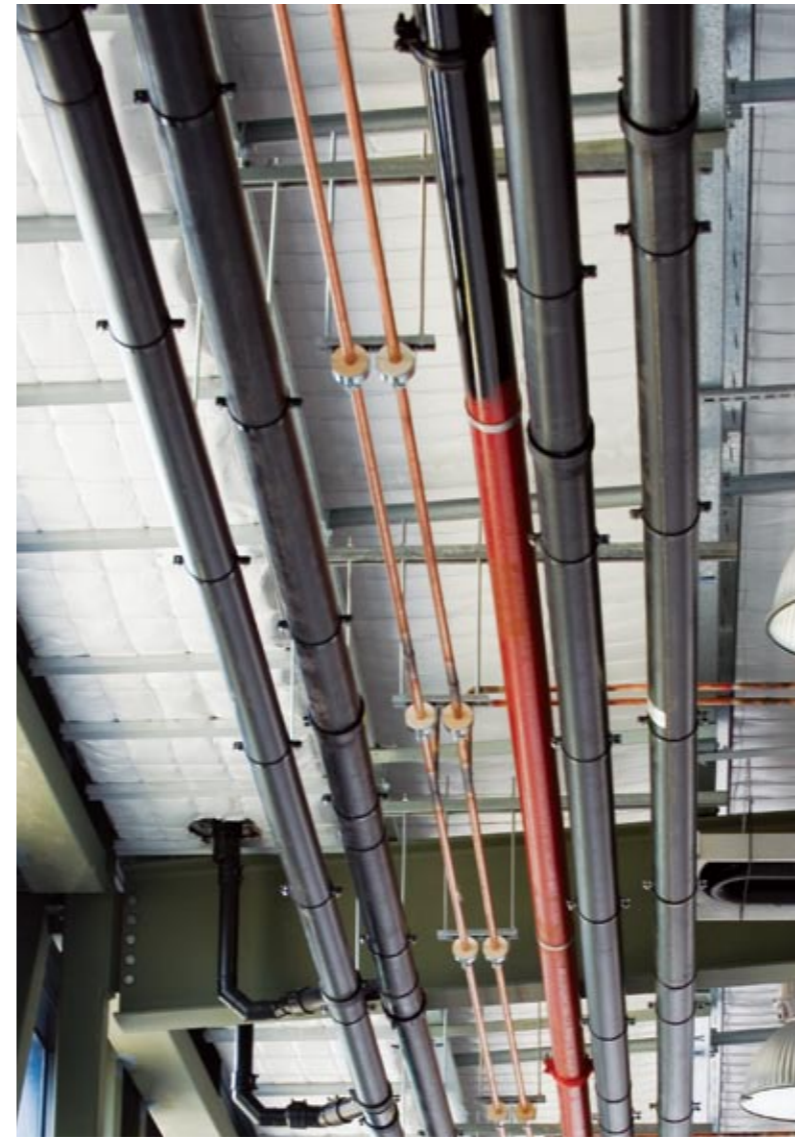
According to Foreman Robert Grbavac, I & D Constructions is unique in the Victorian building industry as they utilise table-forms in order to mould concrete, a reliable method that has remained largely unchanged for twenty years. Table-forms consist of slab formwork "tables" that are reused on multiple stories of a building without being dismantled. The main advantage of this system is its efficiency and flexibility as it greatly reduces the time and manual labour needed to set and strike the formwork.

I & D Constructions helped to erect the Automotive Centre while working through a number of design challenges, both structural and mechanical. Allowances had to be made for the centre to better withstand earthquakes, as well as the addition of ecological features such as hydronic pipes installed within the concrete floors and ceiling slabs. Water runs through these pipes in the exposed floor slabs, which is either cooled or heated to provide comfortable radiant temperature exchange. The building's structural design also provides the perimeter areas with natural ventilation, allowing openings in the façade to be used to cool and ventilate the building when external conditions permit.

I & D Constructions were proud to lend their services to such a venture, where a carefully planned aperture design can act as an effective temperature control system.

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# THE ART OF DRAINAGE



The Kangan Institute's Automotive Centre for Excellence (ACE) was always envisioned with the latest in sustainable design. And for the best in roof drainage systems, there was only one choice. Fast Flow Australia create and supply the most sophisticated roof drainage systems in the world today.

Fast Flow specialise in Siphonic systems, advanced drainage technology that is engineered on the concept of full bore flow (a fill rate of 100%) of incompressible fluid. This system transfers high-velocity rainwater through pipe networks by harnessing the energy derived from the natural difference in elevations of roof outlets and the discharge points in a building.

It is no secret the ACE is a product of cutting-edge architecture, from the unique roof that bolsters internal ventilation, to the transparent glazed façade. Fast Flow had to find their place amongst this lattice-work of "green" solutions. They did this by planning pipe routing for both a Primary and Overflow Siphonic system so as to compliment the architectural interior. With a firm focus on sustainability, they installed a 140,000 litre rainwater collection and reticulation system which features prominently in the water recycling and building cooling systems.

Fast Flow consider themselves industry leaders in water drainage technology. Thanks to their highly accurate FastFlowCALC software and hydraulic testing lab, the team at Fast Flow are able to ensure that every part of a pipe network goes through extensive engineering analysis.

Thanks to a combination of innovation and ambition, the ACE has received a 5 Green Star rating for energy and sustainable design from the Green Building Council of Australia. The clever design of the ACE will ensure that it consumes only half of the average energy consumption of a typical Melbourne office building, which should reduce greenhouse pollution by 103 tonnes per year – the equivalent to planting 155 trees annually.

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