

# GREEN DESIGN DELIVERED BY INNOVATIVE THINKING

The \$126M Deakin Uni Burwood Highway Project features two intersecting towers sitting over an expansive four levelled podium.

Hansen Yuncken takes pride in adding value to projects, through innovative approaches to construction materials and methodology. For the \$126 million Deakin University Burwood Highway frontage project, the company's solution-focused procurement and programming was also responsible for delivering the Woods Bagot design in ways which improved appearance, function and sustainability outcomes while still remaining within the budget.

The project comprises an eight-level tower connected to a five level podium building, which appear interlinked and together comprise a dramatic new entrance for the Burwood Campus. The project brief had set high sustainability benchmarks, with measures including solar power, a high performance facade, extensive use of natural light in the

interiors, underfloor air distribution and in-slab active mass cooling. The Burwood Highway buildings will serve a number of purposes for the University.

Levels 1 and 2 comprise hospitality and event spaces, including a 150-seat bistro (The Point) and function centre, which will be open to the public on weekends. These levels also house the Burwood Corporate Centre, which includes 10 boardrooms, a lounge and a Council Chamber. A full catering service will be available for users, who it is expected will include Deakin University's corporate partners.

Level 6 features the Office of the Deputy Vice-Chancellor and the Chief



MAIN CONSTRUCTION COMPANY : Hansen Yuncken  
CONSTRUCTION VALUE : \$126 million  
COMPLETION DATE : March 2014  
ARCHITECT : Woods Bagot  
STRUCTURAL ENGINEERS : JMP Consultants  
SERVICES ENGINEERS : ULA Consultants  
BUILDING SURVEYORS : PLP Building Surveyors

Financial Officer's staff, and on level 7, the Vice-President (Advancement) and staff of the Advancement Portfolio have offices.

Level 8 holds offices for Advancement (Donor Relations) staff and the Vice Chancellor's Office. In total, the project has added over 18,000m<sup>2</sup> of flexible floor area to the campus, in addition to the landscaped area of the podium which forms a significant public and connective space within the University's public domain.

Beneath the building, there are undercroft and basement spaces which generally follow the site's original land contours. Within the basements there is parking for 370 cars, in addition to lifts, water retention tanks and major service plant. The structure of both buildings comprises insitu concrete, with an exposed Class 2 finish. This required a high level of attention to detail on the part of the construction team, to ensure the required level of quality would be achieved.

Planning of the sequencing for the extensive access floor plenum system was a challenge, with the need to ensure interdependent trades programs were synchronised for efficient and safe installation of the floor system and the underfloor services including HVAC ductwork.

There was also a major safety risk with the open access floor areas during construction and the need for trades to be working in those areas. Hansen Yuncken resolved this issue through the use of custom made lightweight access bridges, which provided a safe way to access work areas.

Typical tower slabs contain an extensive in-slab network of cool water piping, totaling some 50 kilometres. The use of this passive active mass solution is now providing a well insulated comfortable environment with excellent ESD properties. The installation required considerable care during concrete placement and the subsequent fixing of ceiling and services to the exposed soffits.

The original design for the facade was re-interpreted and specified as an alternative, fully panelised curtain wall facade comprising more than 1700 individual panels, and featuring a highly articulated sunblade system for both texture and shading. The proposed facade panels were prototyped and tested in Monash University's wind tunnel facility.

A Hong-Kong based facade consultancy directly employed by Hansen Yuncken oversaw the production and quality of the facade panels, which were fabricated in Guangzhou,

Southern China. Once shipped to Australia, they were lifted into position by floor cranes, itself a detailed logistical feat to ensure each panel was placed in position without damaging the feature aluminium fins.

Inside the buildings the design features the extensive use of a timber wall system, which was value engineered to provide a flexible long term system, enabling improved offsite fabrication options and to ensure a more efficient installation process. This approach succeeded in producing a stunning-looking result, while also returning a considerable credit saving to Deakin.

There is also an interior feature of over 13000m<sup>2</sup> of light-weight, multicoloured 'Echopanel' baffle blade ceilings, which were manufactured with a high proportion of recycled content. The complex geometry of the ceilings meant there had to be careful coordination with the soffit services.

To ensure the project's energy efficiency and other performance targets would be met, Hansen Yuncken undertook detailed planning of the final services commissioning and delivery before handover.

The workforce on the project included 35 major subcontractor and supplier packages, with close to 2,500 site inductions carried out by the final stages of the project. Over 555,000 manhours were worked on the project between commencement and March 2014.

Hansen Yuncken has delivered many state-of-the-art education projects across Victoria, South Australia, New South Wales and Queensland. Some of the company's other recent successes in delivering high quality, sustainable and innovative learning environments have included the James Cook University Clinical Practice Building in Townsville, James Cook University School of Dentistry in Cairns, the M2 and Plasso at the University of South Australia, and the School of Architecture building for the University of New South Wales.

In 2013, the company had numerous education sector projects recognised with awards, including two AIB Awards for the James Cook University Central Energy Plant, an MBA Award for the James Cook School of Veterinary and Biomedical Sciences, a Property Council of Australia Award for the School of Veterinary Science at the University of Adelaide.

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## SETTING THE TECHNOLOGICAL PACE

**With technology advancing so rapidly, by the time a project is ready for completion, the original technology designed at its conception may already need upgrading.** This was the scenario for Programmed Electrical Technologies – however it was a challenge the company was able to accommodate. “Programmed Electrical Technologies were engaged by Deakin University for the audio visual subcontract works,” State Manager – Audio Visual Operations Luke Ismail said.

The AV systems were designed by Umow Lai and was the second new Deakin University building that both companies had worked on together having completed the Deakin University Regional Community Health Hub (REACH) in late 2012.

“This ranged from video conferencing and presentation facilities for meeting rooms and classrooms, small scale single point video conference systems for senior management offices and small scale presentation spaces for four to six people. “The most significant challenges faced by Programmed were the significant advancements in technology over the project lifecycle and trying to ensure the systems

at delivery matched the most recent version of the Deakin University internal technology standards which are periodically updated as new technology becomes available.

Due to the size and nature of the project, its design and conception occurred in 2011 and were based on the university technology standards available at that time which during the course of the project were progressively updated to take advantage of new digital technologies. Luke explained that from the point of being awarded the contract for the works, the company underwent two major changes to the scope for the works, the company underwent two major changes to the scope to ensure it accommodated the upgrade in technology. This upgrade had to be delivered within the same timeframe and without a considerable financial impact to Deakin University.

“This was particularly difficult given the second instance occurred at a stage when the equipment racks were populated and built offsite. All but one level on site was roughed in,” Luke said.

Programmed were required to negotiate with vendors on behalf of Deakin to secure the swapping of stock as much as possible. Programmed also modified the design to minimise the impact of re-cabling works on site to ensure the delivery of some of the most advanced technology with as minimal impact to the university’s budget. “This process involved input from System Integrators, Control System Programmers and the Project Manager into the re-design. Delivery site staff (including technicians, commissioners, programmers and the Project Manager) worked additional hours and weekends in the lead up to Christmas to ensure the right outcome was obtained in the same program timeframe.”

With more than 800 staff across Australia, Programmed Electrical Technologies specialises in the design, installation and maintenance of integrated electrical, voice and data cabling. It also specialises in secure networks, audio visual systems, green building management services, intelligent lighting control solutions and electrical construction, fit outs and design.

The company is part of the Programmed Group (previously KLM Group Limited) which employs more than 10,000 staff. The Group also includes Programmed Property Services, Programmed Facility Management, Programmed Turnpoint, Programmed Marine and Programmed Integrated Workforce.

Programmed Electrical Technologies is now working on a number of projects across Melbourne, including an audio visual construction and integrated fit outs for Medibank at 720 Bourke Street and at the City West Police Complex. It’s also undertaking electrical and communications construction and integrated fit outs for the Myer Emporium Restoration, communications and audio visual construction at the Victorian Comprehensive Cancer Centre – Peter MacCullum Hospital, and optical fibre to the home for Upper West Side Apartment Towers.

Programmed Electrical Technologies’ past projects include AAMI Park stadium, ANZ Headquarters in Melbourne’s Docklands and the RMIT Swanston Academic Building.

**For more information contact Programmed Electrical Technologies, 355 William Street, West Melbourne VIC 3003, phone 03 9320 3444, [www.programmed.com.au](http://www.programmed.com.au).**

# DTAC - THE TRUSTED NAME IN FLOOR TACTILES AND STAIR EDGING

When it comes to the design, supply and installation of tactile indicators, stair treads and edging, DTAC Pty Ltd has been the trusted name in the industry for almost 15 years. The company pioneered the architectural floor tactile industry in Australia, taking a practical product and transforming it into a feature that complements a structure.

DTAC's work can be seen throughout a number of iconic sites across Australia, including the new NAB building on Bourke St, Melbourne, Hawthorn Town Hall, The MFB Complex and Yarra Valley Water headquarters. Among the company's latest projects was the Deakin University Burwood Highway Frontage Building, where it installed a variety of tactiles in various parts of the site.

DTAC started the project in December, with the majority of works completed after the Christmas break from the 20 January until the project was finished in early April. The site works were completed by three staff who were supported by the DTAC sales team.

"We installed over 43,000 DTAC tactiles including our thermoplastic urethane tactiles in black and the DTAC 316 stainless steel tactiles. We

also installed the DTAC integrated rubber tactile mats in some of the utility areas within the building," DTAC Operations Manager Michael Moulding said.

Almost a kilometre of DTAC's Pleat stair edging in black anodised also went in to the Deakin University project using a combination of edging profiles to suit the stair areas. A late change to the specification of one of the stairs saw DTAC work closely with Hansen Yuncken to provide a solution to an unusual angled stair riser. "We also had an unusual request in that we installed brass tactiles on the concrete roof of the building as markers for infrastructure," Michael added.

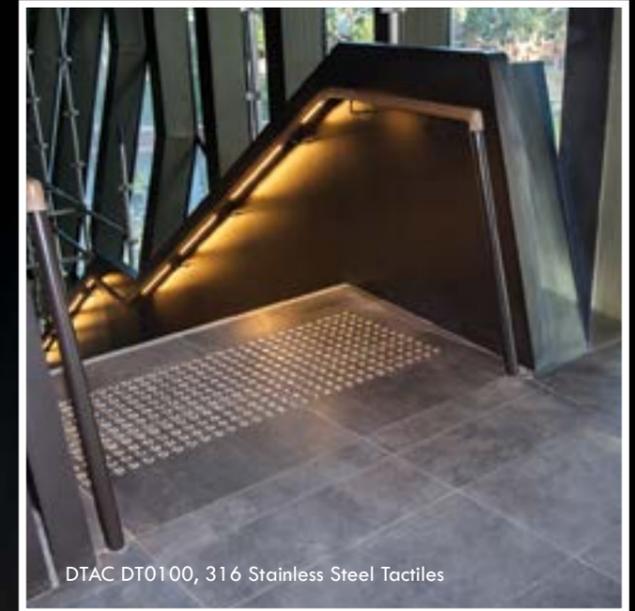
"DTAC also ensured it was flexible about how we attended the site, including working with public access for the students and staff at the university. Together with Hansen Yuncken, DTAC staff co-ordinated building level access and stair closures in accordance with the stair nosing installation."

"Working in with these changes is part and parcel of what we do," Michael added. "We believe it is the workmanship, expertise and commitment to a project that is important."

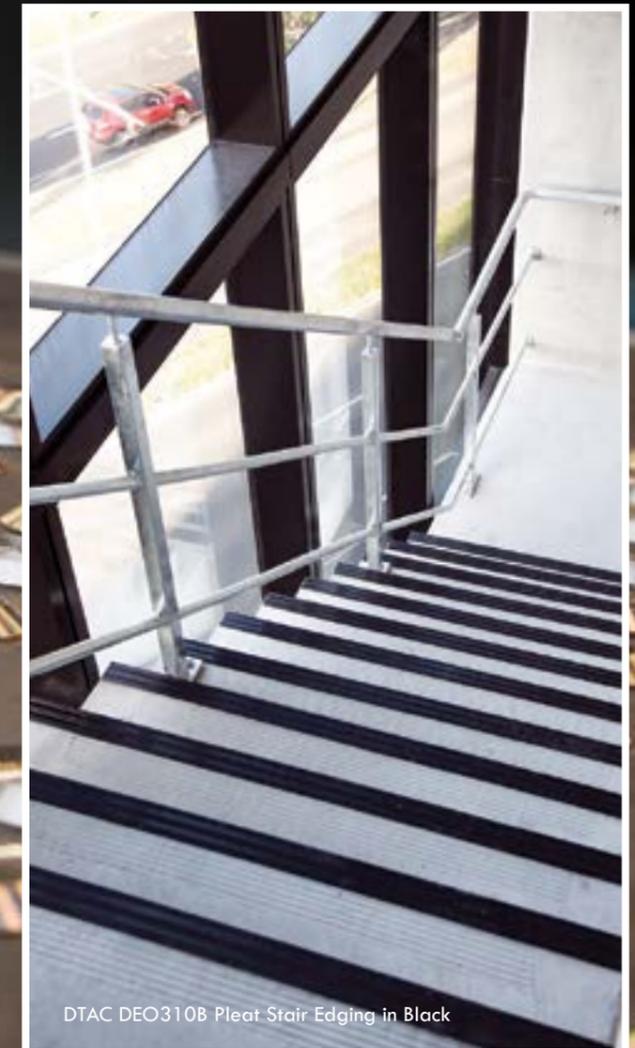
With six staff as well as contracted installers, DTAC's specialist knowledge, combined with its focus on detail and quality, sees it continually chosen for tactile, stair and tread edging compliance requirements on both large and smaller construction projects. It also delivers the most aesthetic NCC-BCA compliant solutions available, while offering an extensive range of tactile products. "In addition, all of our installers complete an 18-step accreditation process before going on site. This means our clients can be assured that our contractors have the experience and expertise when it comes to the compliance of tactile and edging installation, as well as the aesthetics," Michael said.

Besides designing and crafting their products to the DTAC design certification, the company's products also meet Australian standards, as well as National Construction Code and Disability Discrimination Act (DDA) requirements.

For more information contact DTAC Pty Ltd by, phone 1300 793 478, fax 1300 780 628, email [sales@dtac.com.au](mailto:sales@dtac.com.au) or visit our website [www.dtac.com.au](http://www.dtac.com.au)



DTAC DT0100, 316 Stainless Steel Tactiles



DTAC DEO310B Pleat Stair Edging in Black



## AN OUTSTANDING DEMONSTRATION OF WORLD-CLASS ABILITIES

The same innovation and engineering excellence which created the facade of Dubai's Infinity Tower has been dedicated to the Deakin University's new Burwood Highway Frontage (BHF), with Jangho Curtain Wall's Australian division again demonstrating the talents which have made them world leaders in facade design and manufacture.

For the BHF project, Jangho designed, manufactured, and installed a specially designed wrap around facade, which consists of unitized curtain wall panels with a distinctive vertical fin sunshade detail. The architecturally-designed fins create a 3D effect of gradients across the vertical, horizontal and diagonal planes, and their sun shading combined with the use of Double Low E glass throughout gives the facade a high level of energy-efficiency, reflecting Jangho's core commitment to creating sustainable built spaces.

A noteworthy feature of the facade is the double height panels which enclose the B1 and L1 levels. These have no bulky internal support, which allows for more expansive, unobstructed views across a large area.

Jangho utilised the talents of both their Australian staff and engineering and manufacturing staff at the company's China-based facilities for the design and construction of the curtain wall units.

"The Deakin Project has turned out to be an iconic development with high levels of design and engineering. Jangho significantly contributed to this impact by steering away from the concept design and developing a curtain wall system with emphases on costs, durability and functionality," said Jangho Spokesman, Adam Lu.

"Since the design phase, the challenges we were up against were certainly of amplified magnitude. All obstacles and challenges were overcome through extensive innovation, creativity and even testing through the means of utilising the wind tunnel at Monash University for the purpose of achieving the fins to the required expectations. All these were achieved through a team involving engineers and acoustic consultants."

Jangho's Australian team on the project included Designer Mov Ear, Project Manager Malcolm Davies, Project Co-ordinator Kin Gong and Site Manager, Dave Burke, who coordinated the subcontracted installation team from Keystone Installations P/L.

Another highly challenging and spectacular design and construct project Jangho is currently completing is the Six Star Green Star 720 Bourke Street project. The \$220 million commercial office tower's 36,000m<sup>2</sup> facade comprises unitized curtain wall, ribbon framing and louvers, and the project also features a full-height central atrium.

Jangho operates a Certified Quality Management system to ISO 9001, and has over 6,000 highly skilled, creative and quality-focused architectural, engineering, design, manufacturing and project management staff located in offices around the world. This gives the 83 staff of the four Australian offices in Melbourne, Sydney, Brisbane and Perth a truly global resource base to draw on in constructing facades and curtain walls for visionary designs.

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## BUDGETING FOR PRIORITIES AND PLANNING FOR SUCCESS



Applying focus, diligence and commitment to their cost management role on the Deakin University Burwood Highway Frontage (BHF) project, leading Quantity Surveying practice Wilde and Woollard ensured the University's \$127 million project budget was effectively managed to deliver lasting value. The firm's involvement in the project spanned four years and two separate works packages, the early works and services contract completed by Watpac, and the Main Works contract undertaken by Hansen Yuncken.

As one of the largest projects ever undertaken by the University, it was essential that a full and comprehensive cost and risk management service was initiated, the scope of which included full cost management, contract bills of quantities, detailed risk management and financial reporting during documentation and construction.

The BHF precinct comprises a major new urban and social hub for the Campus, and the resolution and positioning of the built form within the precinct presented its share of cost planning challenges, with complexities including the re-alignment of roads and services, construction of a high performance shaded facade and a highly energy efficient building design.

Wilde and Woollard met these challenges by committing senior cost planning teams including Directors of the Practice to specific hands on roles at key times. These roles included research and evaluation around buildability of structures and facade systems; a dedicated approach to the management of engineering services costs; benchmarking of the project against other similar type facilities in the sector; proper evaluation of procurement options; and robust life cycle cost modelling.

The team was headed by Director Murray Campbell with major responsibilities shared with fellow Director Michael Bennett, Senior Quantity Surveyor Scott Reid and a team of support staff. "We are extremely proud to have been involved in the delivery of this major project for Deakin University, one of our very best and long term clients, to a successful cost management outcome within the University's budget," said Murray Campbell.

"Projects of this scale don't succeed by accident. From our perspective, a very detailed cost management methodology must be developed and adhered to, and key people must follow the project from conception through to completion. Many of the university projects we deliver exceed \$100M and up to \$200M, so the decisions we are working through on a daily basis are cost significant ones. Directly appointing the right Quantity Surveyor with an experienced and committed team is a sound University investment when it comes to rolling out a new project."

Wilde and Woollard personnel are members of TEFMA (Tertiary Education Facilities Management Association), AIQS (Australian Institute of Quantity Surveyors) and CEFPI (Council of Educational Facility Planners International). The company's expertise has been relied on for recent education sector projects, including multiple projects for Deakin Campuses, the iconic RMIT Swanston Academic Building, the Advanced Technologies Centre for Swinburne University, in addition to recent projects at Newcastle, Charles Sturt, Western Sydney and Ballarat Universities.

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