THE GREEN BUILDING TREND

Designed to cooperate with the natural environment, significantly reduce energy consumption and create an interactive learning space, the eight-storey, 20,000m^2 Advanced Engineering Building (AEB) will establish a new standard for sustainable construction.

Main Construction Company : Watpac
Project end Value : $135 million
Completion : May 2013
ARCHITECTS : Richard Kirk Architect / Hassell
Structural Engineer : Aurecon
Surveyor : QSS Surveys

Hailed as a living laboratory, the University of Queensland's Advanced Engineering Building (AEB) reflects the future of the engineering industry. The green building trend, promoting environmentally conscious living and interaction has been a dominant theme within the construction industry in recent years. As a training ground for the next generation of engineers, the AEB epitomises this approach.

Designed to cooperate with the natural environment, significantly reduce energy consumption and create an interactive learning space, the eight-storey, 20,000m^2 building will establish a new standard for sustainable construction. Transforming and optimising engineering education by integrating all aspects of research, postgraduate training and undergraduate education, the facility is set to align the university's engineering program with leading international authorities.

The centre-piece of the new engineering precinct at UQ's St Lucia campus, Brisbane, the AEB comprises a state-of-the-art GHD auditorium, active learning spaces where lectures are incorporated with laboratories that will be used for design, build and test purposes, along with support facilities and administration offices. The multi-purpose building will accommodate 3,600 engineering students of all disciplines: structural, civil, materials and hydraulics.

Awarded one of the highest sustainable design ratings for a building in its group, the AEB is five-star Green Star Education Design v1 Certified by the Green Building Council of Australia. Positioned on the site of the old Civil Engineering School, on the corner of Staff House Road and Jocks Road overlooking the lake, the impressive structure demands attention, and not just for its presentation.

The AEB's revolutionary design maximises natural resources (light and ventilation), to achieve an estimated 40% reduction in annual energy performance of 180 to 210 khw/m2 per annum. Key design elements include: the atrium to introduce tempered air and light into the building's core, night purging, and exceptional daylight levels, a highly efficient timber facade, mixed mode ventilation promoting natural ventilation and reducing the need for air conditioning, and a large recycled materials component (wood, rubber and fibres).

These simple systems are coupled with a 100 Kw solar Photovoltaic system to reduce the building's carbon footprint, TaskAir® workstations, which deliver fresh air straight into the breathing space of individual terminal occupants, and a building-wide monitoring system to track the structure's sustainability performance.

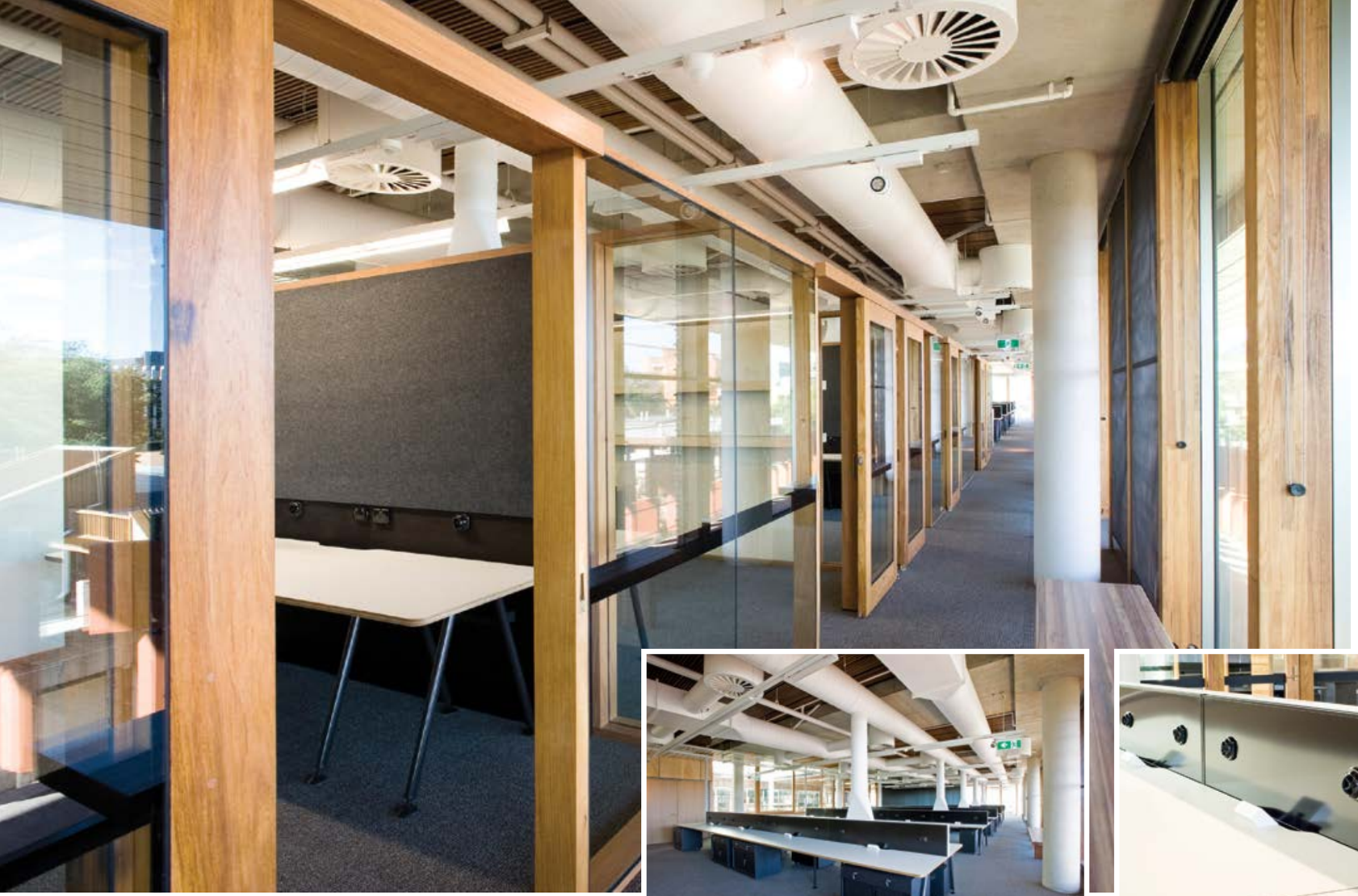
Richard Kirk Architect in conjunction with Hassell won the design contract via competition. An integral part of the design element is the high degree of visibility of processes and equipment. The university wanted the building's 'raw' structural components to be as open and transparent as possible; its inner workings on display to reflect its purpose. The result is truly ingenious. The 'live building' design allows students to see engineering and design working collectively, and operational data collected by the building's real-time environmental monitoring system will be made available to students as part of their curriculum.

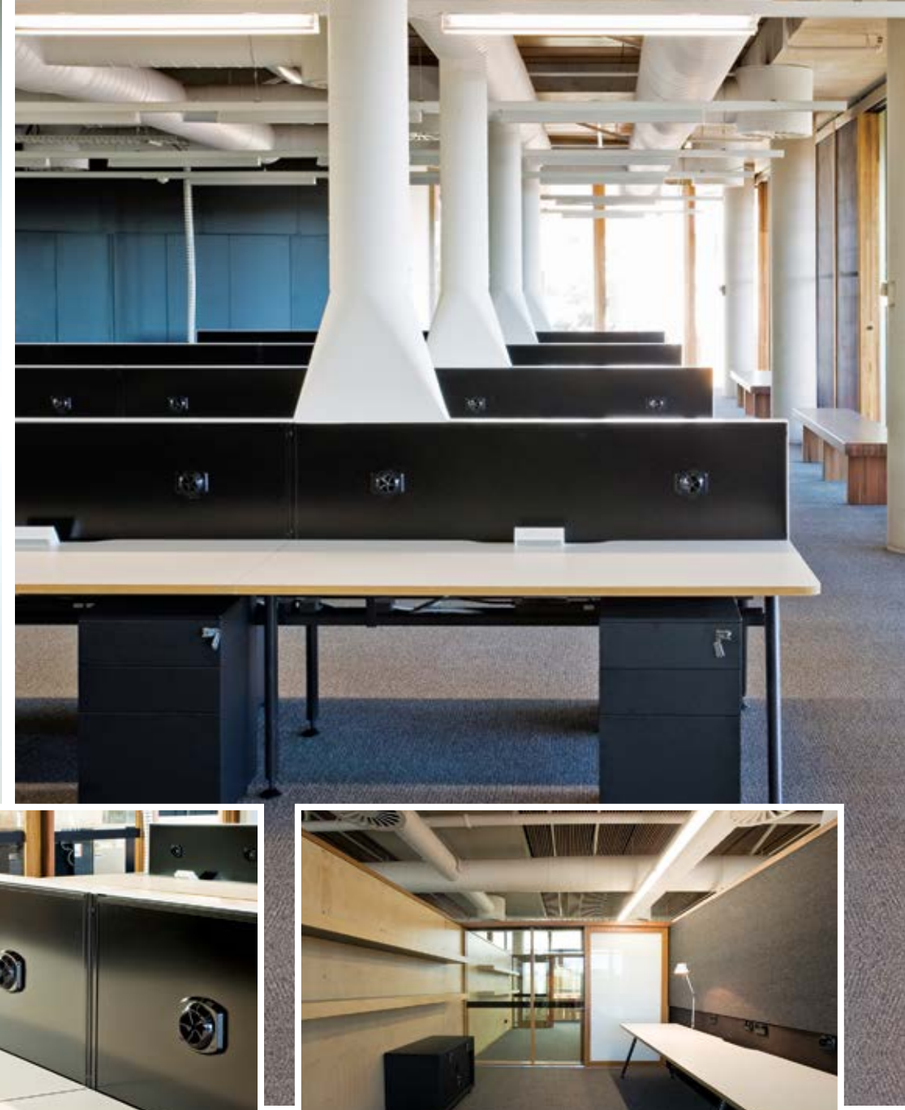
Watpac's Queensland construction division brought the project to life for the university. Awarded construction of the $135m structure - jointly funded by the Federal Government (Education Investment Fund) $50m, State Government $15m, engineering company GHD $2.5m and UQ - the highly-anticipated project is due for completion in May 2013 and will be fully operational by Semester 2, 2013.

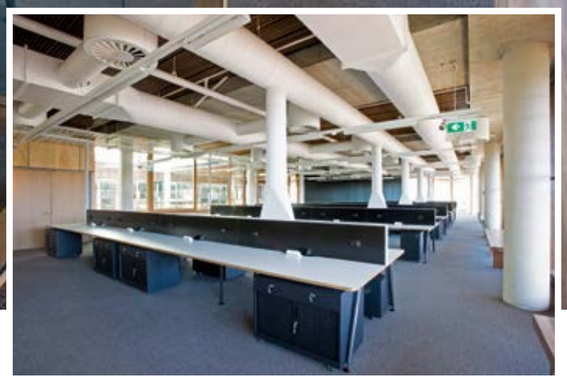
Watpac and UQ have had a long-standing relationship. Watpac delivered the university's impressive Queensland Brain Institute, the Sir Llew Edwards Building and UQ project managed $354m Translational Research Institute (TRI) at the Princess Alexandra Hospital, Brisbane.

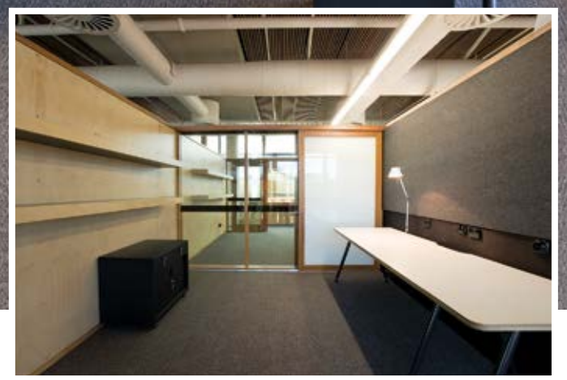
UQ is committed to an environmentally conscious approach to all future building works as set out in its Carbon Reduction Strategy (reduce the university's carbon footprint by 25% on 2008/2009 levels), and its yet to be finalised Climate Action Plan, which recommends measures to reduce emissions by 2020. The AEB is part of the university's $740m investment in capital works currently underway across its various campuses and properties. The $31.8m Global Change Institute (GCI), also under construction at St Lucia, will aim to achieve the highest international Green Star rating of six.

For more information contact The University of Queensland, Hawken Engineering Building, St Lucia Campus 4702, phone: +61 7 3346 9976, email: t.leggatt@uq.edu.au, website: www.uq.edu.au
Watpac Brisbane Head Office, Level 1, 12 Commercial Road, Newstead Qld 4006, phone 07 3251 6300









SUSTAINABLE JOURNEY

UCI is leading the field in eco-designed office furnishings. The Australian manufacturer of commercial office furniture has over 35 years in the business and is considered the nation's front runner in workplace furniture fit-out.

From a single showroom in Melbourne in 1972, UCI has grown to achieve a global presence. Formerly known as Interlink, the company has had offices in every capital city in Australia since 1985 and in 2006 rebranded to UCI. Offering a mix of Australian manufactured products and selected international solutions, the UCI range includes environmentally certified options, workstations, tables, seating, storage, lighting and accessories.

Taking its sustainable journey to the next level, UCI is embracing the eco-design trend and experiencing great success with its world-first TaskAir® technology. TaskAir® was invented in Queensland and is the show piece in UCI's impressive portfolio. Built into a conventional office workstation, TaskAir® brings an entirely new method of looking after the indoor air quality of a building. Essentially solving the top two concerns for office design and fit out consultants: air quality and thermal comfort.

The user-friendly system, not unlike that used in a car, delivers fresh air straight into the breathing space of individual workstation occupants through a diffuser positioned in the workstations screening system. The design enables each employee to control the level of air to meet their individual needs; in effect a self-adjustable, personal air supply.

When used effectively, TaskAir® can significantly boost a structure's Green Star rating. The Green Star environmental rating system recognises projects that realise four star rating (45-59 points), that is, 'best practise' outcomes or greater. Developers looking to construct four, five or six star buildings can claim up to nine credits by utilising TaskAir technology. "It's a tool for an astute mechanical engineer to claim far greater points than they would without using the product," UCI Australia Director Nick Scriggins said.

UCI Queensland provided the green advantage the University of Queensland required to create its recent venture: the Advanced Engineering Building. The University's vision of achieving a Green Star rating was achieved and the use of the UCI exclusive product TaskAir® workstations within the Watpac Constructions development played a significant role in realising this.

As a member of the TaskAir® design team, Mr Scriggins is well versed in the product's ground-breaking features, which were tweaked to meet the university's specific criteria. "The air blade was adapted purely for the Advanced Engineering Building with the requirement to have the exposed duct work in the building as part of the interior design," Mr Scriggins said. The aesthetic result is a bare, industrial look, in keeping with the project's raw, mechanical theme.

The workstations are produced at UCI's manufacturing facility in Adelaide. UCI Queensland will supply and install the workstations in levels one, two, four, five and six of the building; some 300 in total.

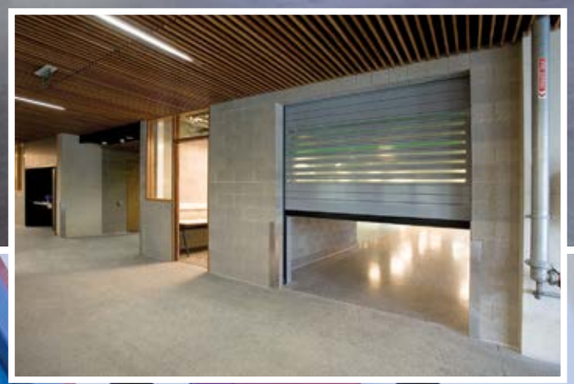
UCI Queensland has developed a strong professional relationship with Watpac Constructions. In addition to the University of Queensland's St Lucia campus project, UCI Queensland is contracted to supply and install TaskAir® workstations for Griffith University's Sir Samuel Griffith Centre. When complete in the first half of 2013, the $40million building will be Australia's first zero emission and self-powering teaching and research building.

The demand for TaskAir® technology is growing and parallels the movement for ecological-design and ecologically-efficient building practices. Mr Scriggins said the technology has universal appeal and triggers potential at all levels of the building process; from mechanical engineers, architects, designers and ultimately the end users.

The organisation's formula of evolution and sustainability continues to impress and UCI remains Australia's premier commercial furniture and fit out specialist.

UCI would like to acknowledge Richard Kirk Architecture + HASSELL – Architects in association on such an impressive project.

For more information contact UCI, 3 Primrose Street Bowen Hills QLD 4006, phone 07 3854 1600, fax 07 3252 3512, website: www.uci.com.au



IDEAL SOLUTION FOR ENVIRONMENT CONTROL

As you walk into any milk bar or takeaway in Australia, chances are you wrestle your way through a plastic strip curtain. Marcus Tutty's company Premier Plastics manufactures those multi-coloured strip doors on Australian shores, and the managing director is the first to admit "they drive most people mad."

Somewhat primitive in design, the entrance coverings longevity - from the 70's - is proof enough of their effectiveness (health authority approved) and testament of the Victorian company's ingenuity and superiority when it comes to access solutions.

Premier Plastics manufactures these plastic strip curtains, flexible plastic doors, high impact traffic doors and high-speed Rapid Auto-Roll doors for commercial and industrial applications. The brand's 100% Australian manufactured products have a range of features including security and ease of access.

The ideal solution for environmental control (dust, insects, temperature and noise), the made-to-order range is used in a variety of applications, from small internal doorways or large external openings subject to high wind, to freezers or Class 1 Zone 1 environments.

In conjunction with our partner company DMF International in Sydney, Premier Plastics has added to its range by becoming the Australian agent for the large multi-national German company, EFAFLEX GmbH & Co KG. Premier Plastics is fully accredited to sell, install and service their vast range of hi-tech, high-speed doors.

The University of Queensland's Advanced Engineering Building is Australia's latest architectural masterpiece to showcase the EFAFLEX range.

The structure features four EFAFLEX high-speed doors in three different configurations to suit the varied sized openings, and as Mr Tutty explains, they meet the client's high expectations.

"Due to the high level of traffic expected on site, acoustic qualities were of particular concern, as too was speed and the inherent very high safety and security aspect of these doors was also a deciding factor, plus their automated, fast opening and closing nature meets these requirements."

Mr Tutty credits his sales and technical team, led by Anthony Comegna and Alex Petrovic, and the company's partner in Brisbane, Andrew Turvey of I.Deal Doors, all working closely with EFAFLEX for securing the high profile contract after a detailed consultation process.

"We worked with the architects during design to create a product that met all their specifications, including being sympathetic to the building design without compromising the product's existing features."

"There are two conventional round spiral doors, one low lintel spiral, and a relatively new, round, space saving spiral door. When I say conventional, it is probably anything but. These doors do not roll up per se, instead, the door curtain enters into a spiral at the top enabling the very high speeds, virtually no noise during operation, and as the door curtain does not touch itself as it opens and shuts there is absolutely no wear on the door curtain during its entire life."

Ordered from Germany in late October 2012, the shipment arrived on the St Lucia building site in February 2013. Installation is complete except for the final hand over. Premier Plastics' EFAFLEX technician flew to Brisbane for the installation assisted by on-site contractors.

Premier Plastics is committed to remaining a front-runner in the field. Mr Tutty considers personnel development key to the established company's continued success, with plans to extend his team of German-trained EFAFLEX specialists to three in 2013.

As an independent wholly owned Australian company, Premier Plastics is proud of its 40+ year history. Founded as a plastic extrusion solution company in the mid 60's, since acquiring the business in 1991, Mr Tutty has added a diversity of products, and the business has been purely door focused since selling the extrusion division in 2010. Premier Plastics now employs 11 personnel and is highly-regarded for providing bespoke ingress solutions for any situation.

The Victorian-based company's capacity to meet client briefs and produce custom-made entries to exact specifications has driven its recent growth. Premier Plastics is currently contracted to produce 20 units for the Commonwealth Serum Laboratories (CSL) in Campbellfield, Victoria: 16 EFAFLEX doors and four tailor-made doors. The 16 EFAFLEX products are mostly hi-tech clean room doors, capable of working automatically in an absolute germ-free environment.

A true nation-wide contractor Premier Plastics has several Tasmanian-based clients, namely, a supply and install contract for three large doors (approximately 8m x 7m) at the Australian Antarctic Division redevelopment on Macquarie Wharf No. 2, Hobart, for TasPorts, a five door order for Costa Logistics temperature controlled warehouse expansion in Devonport, and a five door contract for dairy giant Murray Goulburn's new milk processing facility in Smithton.

A preferred dairy industry contractor, Premier Plastics produced six custom-made doors for Fonterra in late 2012. Other recent high profile clients include: Boral Cement, Hospira, Doncaster BMW, Toyota Altona, Robert Bosch, ADF Bandianna, and Bunnings.

For more information contact Premier Plastics, 69 Killara Road, Campbellfield 3061, VICTORIA, phone +61 (03) 9357 8477, fax +61 (03) 9357 8938, email: info@premierplastics.com.au, website: www.premierplastics.com.au

AN ESSENTIAL COMPONENT

Formwork is an essential component of the construction process and contractors could be forgiven for lacking creativity when it comes to foundation work. Not oneform group. Going beyond the norm and taking on challenging projects is what this Queensland-based formwork company does best. No surprises, oneform was the ideal fit for Watpac Construction's adventurous University of Queensland Advanced Engineering Building project.

The innovative structure - the focal point of the St Lucia campus - is one of the nation's finest recent examples of green construction. The building frame is off-white exposed and of form grey exposed picalconcrete and as company director Paul O'Sullivan explains, the elaborate design offered the oneform team an opportunity to explore creative solutions. "Our in-house engineer and draft personnel ensured each element was structurally sound, while remaining sympathetic to the environmental design briefs. Our team worked with Watpac to devise specific form, this involved modifying existing products to suit the client and workshopping ideas that were both complimentary and practical in nature."

The multifaceted brief required a high quality finish to all formwork, including some 35000 m^2 of class 2cx exposed concrete walls, much of which was an original design that required specialised forms. Up to 60 personnel were on site for the duration of the contract, which was delivered at the end of October 2012. Mr O'Sullivan said the company's ability to control the scope of work from design through to construct and install ensured the project was more cost effective and all milestones were met.

Breaking new ground and pushing boundaries of traditional design and form has paid dividends for oneform, which has experienced impressive growth since entering the building landscape in 2003. The tier one formwork company is linked to major projects in Brisbane, the Gold Coast, Sunshine Coast and surrounding areas. From commercial multi-level developments including shopping centres, luxurious residential builds, hospitals and education projects, oneform has the industry nous, technical expertise and professional human resource capabilities to tackle any brief.

Privately owned and operated, oneform has developed a company ethos committed to customer satisfaction and excellence in product. The outfit's service offerings include: formwork shutters, column forms, safety screens, self climbing screens, self-climbing formwork systems, specialised form, precast panels, and steel fabrication and erection, all engineered to the appropriate certifications and the highest standards of safety and quality.

The company's own steel fabrication facilities and pre-cast concreting operation means clients benefit from an incorporated, personalised package of services and products. "The facility enables us to fabricate specialised forms in-house; we are not reliant on outside entities and we retain complete control," Mr O'Sullivan said.

The Tingalpa-based company's reputation for pioneering formwork systems and products that impress is complimented by its impressive personnel capabilities. Oneform employees 175 staff: three in-house engineers, a drafting division, five in-house steel fabricators, a team of skilled leading hand carpenters and trade-qualified carpenters, and form workers, including class 1/2c specialised crew. The oneform team also includes apprentices, concreters, labourers, delivery and dispatch operators and an administration department.

The oneform brand has become synonymous with quality and efficiency. In 2012, the company continued its monopoly of high-profile, complex projects throughout the state, including: working alongside Lend Lease on the University of Queensland Royal Brisbane Hospital Oral Health building (a class 2cx contract), the expansion of Southern Cross University's Gold Coast campus for Hutchinson Builders, the $278 million expansion works at Robina Hospital for principal builder Baulderstone, and the walkway bridge at Brisbane airport. hThis particularly complex brief required forms to span 8.5m without any propping, with 750 deep beams and a class 2 off-form finish. The concrete pour was performed while airport traffic travelled under. Not a problem for oneform, which has a proven track record in the construction of premier quality high rise form for large shopping centres and car parks with great efficiency and speed.

The company's aptitude to facilitate intricate contracts has ensured the company continues to lead the field in formwork design and construction. With a focus on high-profile, sophisticated builds that both challenge and inspire, oneform sets the precedent for competitors.

For more information contact Oneform Group Pty Ltd, 396 New Cleveland Rd, Tingalpa 4173, QLD, phone 07 3890 0249, fax 07 3890 0217, email: info@oneform.com.au, website: www.oneform.com.au

HIGH QUALITY FINISH AND SERVICE

As one of the country's leaders in the industry of concrete floor preparation and industrial coatings, Multiblast has built a reputation in the construction industry of providing a high quality finish and service.

The Queensland operation draws on 20 years experience throughout Australia and overseas, and is one of a select group of companies in Australia with third party accreditation through CSIRO for the application of low VOC coatings in commercial and public buildings.

From industrial high tech enviro-friendly coatings, complex floor preparation, polished concrete and designer floors, cementitious toppings, concrete resurfacing and decorative coatings, Multiblast has your floor solutions covered.

The Gold Coast-based company's commitment to industry excellence and detailed approach has seen it awarded a variety of high profile contracts. The striking University of Queensland Advanced Engineering Building is the latest development linked to the Multiblast brand.

Working closely with principal builder Watpac, the Multiblast team led by their Operations Manager and Project Foreman Paul Rollo, was contracted to deliver the flooring solutions for the innovative structure. Situated on the university's St Lucia campus in Brisbane, the multi-purpose building is set to revolutionise learning and research, offering educational facilities for structural, civil, materials and hydraulics engineering students across eight storeys.

In keeping with the super-structure's Green Star design Multiblast applied HYCHEM WE500, an innovative water-based epoxy system. The pigmented, 4mm self-levelling coating has a matt finish and is very low odour and very low VOC (volatile organic compound). Mr Rollo said the scope of work included 2000 sq.m. of polished concrete and in excess of 6,000 sq.m. of epoxy.

Work began on the contract in mid-September, with up to 12 personnel on site at any one time. Mr Rollo said the works were coordinated within Watpac's schedule and the project's integrity was dependant on the team's professional and flexible approach.

"It is very important for us to work with the other contractors in order to maintain our progress and to fulfil our commitment to budgets and program scheduling."

The high-profile project, due to open to students in early 2013, is another prestigious contract for the versatile Multiblast operation. In January 2012 Multiblast delivered the Brisbane City Council Bus Depot, in Sherwood. The contract involved 5,000 sq.m. of a SIKA 3mm self-levelling epoxy flooring system with a transparent polyurethane top coat. The project was delivered in four weeks, including all line marking.

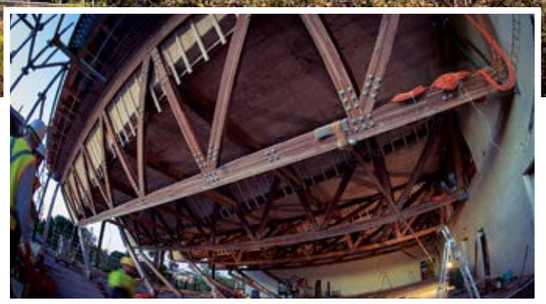
Multiblast's eclectic collection of completed projects, includes: RAAF Super Hornets Facility at Amberley; Australia's largest base, Queensland's Gallery of Modern Art, Virgin Blue Maintenance Hangar at Brisbane Airport, and Queensland State Archives storage facilities, to name a few.

Multiblast has one of the most comprehensive ranges of equipment and processes to meet any industrial or commercial requirement, and welcomes the opportunity to provide technical advice to clients including surface preparation systems, product specification, fully warranted application techniques and post application inspections and reports. Multiblast's professional approach is extremely well regarded in the industry.

Specialising in the commercial and industrial market, Multiblast's knowledge covers the entire spectrum of flooring solutions including: non-slip trowel on epoxy floor coatings, high impact, chemical resistant, ant-static epoxy and urethane coatings, showroom surfaces, roll coat systems, car park and warehouse floor sealers, including dustproof and concrete hardening options.

With a vast portfolio of products, and one of the largest ranges of the latest floor preparation equipment in Australia, Multiblast's reputation for meeting client briefs and delivering customised and professional and personal service is second to none.

For more information contact Multiblast, 78 Minnie Street, Southport 4215, QLD, phone 07 5532 6728, fax 07 5532 6729, email: info@multiblastingflooring.com.au, website: www.multiblastflooring.com.au



EXTRAORDINARILY HEAVY LIFT

The implementation of the architecturally designed timber truss roof of the impressive University of Queensland Advanced Engineering Building, involved an extraordinarily heavy lift.

The colossal 225 tonne roof was too heavy to be lifted by crane; however, the expert team at Mulherin Rigging & Cranes Australia Pty Ltd (MRCA) designed and engineered a lifting frame to get the job done.

The Queensland-based rigging company began assembling the massive roof in sections at its Gold Coast head quarters in January this year. Eight segments of laminated timber truss were constructed, each measuring 30m x 4m.

"We dismantled each section into thirds and trucked them at night to the (St Lucia campus) building site where we reassembled them and formed the one structure. Our crew built the lifting frame around the 225 tonne roof, which was lifted up in place in one lift," MRCA Senior Projects Manager Steve Mulholland explained.

Swiss-made, hydraulic Strand Jacks were hired for the four-level lift, which occurred over two days in early June. "The entire roof structure was suspended on multiple 10 tonne steel cables and the eight jacks pulled the cables up in 300mm strokes," Mr Mulholland said. The installation of the roof signalled a major milestone in the $105million Advanced Engineering Building's progress. MRCA, together with the project's chief builder Watpac Constructions, managed the feat safely, resourcefully and on schedule.

Established in 1995, MRCA specialise in crane hire (eight cranes starting from three tonne capacity to 90 tonne), structural steel and pre-cast concrete erection, in addition to mechanical plant installation and maintenance for projects on the Gold Coast, Brisbane, throughout NSW, the Northern Territory and Western Australia.

Employing 50 trained staff MRCA crane operators, riggers and boiler makers and with access to numerous ticketed contractors. MRCA can leverage its services, personnel capability and solid industry relationships to adapt to any project requirements.

Other significant projects MRCA have completed in the past 12 months include: Brisbane's Airport Link Tunnel, Hanson Quarry, in Kulnura, NSW and the K-Mart Distribution Centre, in Brisbane.

For more information contact Mulherin Rigging & Cranes Australia Pty Ltd, 1 Habana St, Helensvale, Queensland 4212, phone 07 5529 7716, fax 07 5529 7776, email: admin@mulrig.com.au, website: www.mulrig.com.au

BLENDING FUNCTIONALITY AND DESIGN

Reputable industry professional Christopher Contracting, has been providing plumbing services for civil, commercial and residential customers for 25 years.

The Gold Coast-based contractor provides hydraulic services, civil drainage, stormwater, water supply and syphonic downpipe solutions for a range of projects.

Renowned for maintaining budget and work schedules and for providing quality, customer-focused results, the company's expertise was utilised to meet the technical and aesthetic demands of the University of Queensland's Advanced Engineering Building.

Blending functionality and design, Christopher Contracting installed an elaborate, hydraulic plumbing system that met the project's green star accreditation.

The building's extensive plumbing network is largely exposed; a design feature that is a collaboration of HDPE, PVC, Colour bond sheathed copper, painted and stainless steel pipework.

Employing 200 multi-skilled personnel each provided with professional development and continued training to ensure the company remains ahead of the field.

Servicing Queensland and Western Australia, whether it is a plumbing enquiry or a complex, civil contract, Christopher Contracting has the resources and know-how to get the job done.

For more information contact Christopher Contracting Pty Ltd, 34 Harper Street, Molendinar, QLD 4214, PO Box 4300, Ashmore, QLD 4214, phone 07 5500 1100, fax 07 5564 8236, email: admin@christophercontracting.com.au, website: www.christophercontracting.com

University Of QLD Advanced Engineering Building

CHALLENGE FOR ARCO

Creating entrance solutions that not only befit the University of Queensland's Advanced Engineering Building's unique design, but successfully negotiate the building site's restricted conditions was part of the challenge for ARCO (Qld). A prominent supplier of renewable and sustainable building products for the construction industry, the Queensland division of ARCO won the contract to design, fabricate and install four leaf counterweight bi-fold doors, a two leaf counterweight glass door (6.3m x 7.5m) and numerous steel roller shutters throughout the structure.

ARCO (Qld) general manager Brian Gloede said the custom-made four leaf doors were engineered to meet the St Lucia campus' tight access. "The standard form for this type of door is two leaf, however, taking into consideration the overhead gantry crane that was on site, our mechanical engineer designed the 7m x 5.4m doors (four in total) in four panels so as to not project too far inside the opening."

The motorised doors are equipped with ARCO's in-house whisper quiet acoustic/vibration isolation system, a contemporary feature in contrast to the raw, mechanised design. "All the working parts are exposed; there are perforated covers over the counterweights so the mechanism is clearly visible as it goes up and down, in keeping with the university's working building theme," Mr Gloede said.

While great emphasis is placed on the aesthetics of the fold-up doors, safety too, is of paramount concern and customised seals are fitted between the joints. Work commenced on the contract in June 2012 and installation was complete in December 2012. In total, nine ARCO (Qld) personnel were involved, taking the project from design, through fabrication, and finally install. A convert of the green building trend, ARCO (Qld) has grown from its formative years as a commercial and industrial entrance solutions provider into ARCO (Qld) Architectural Building Systems. Supplying clients in all sectors from small scale to major infrastructure projects without any sacrifice to safety and quality, the company ethos is founded on renewable and sustainable practices.

The Stapylton-based operation's environmentally conscious product range - Aluminium Composite Panels (ACP), Perforated Aluminium Panels, Aluminium Honeycomb Composite Panels, and Wood Polymer Composite (WPC) Timber ¨C is ideal in any application and projects seeking Green Star accreditation.

Privately-owned and operated, the ARCO (Qld) team of professionals have over 80 years combined experience in the construction industry and service clients throughout Australia and overseas. The company is currently working on numerous large-scale developments, notably: a commercial contract for Hasting Deering, Mackay, Gemco Mine Groote Eylandt, Northern Territory, Southern Cross University, and 11 counterweight glass fold-up doors for a long-term overseas client.

For more information contact ARCO (Qld) Pty Ltd, 334 Christensen Road South, Stapylton 4207, Queensland, phone 07 3807 5364, fax 07 3382 7929, email: sales@arcoqld.com.au, website: www.arcoqld.com.au