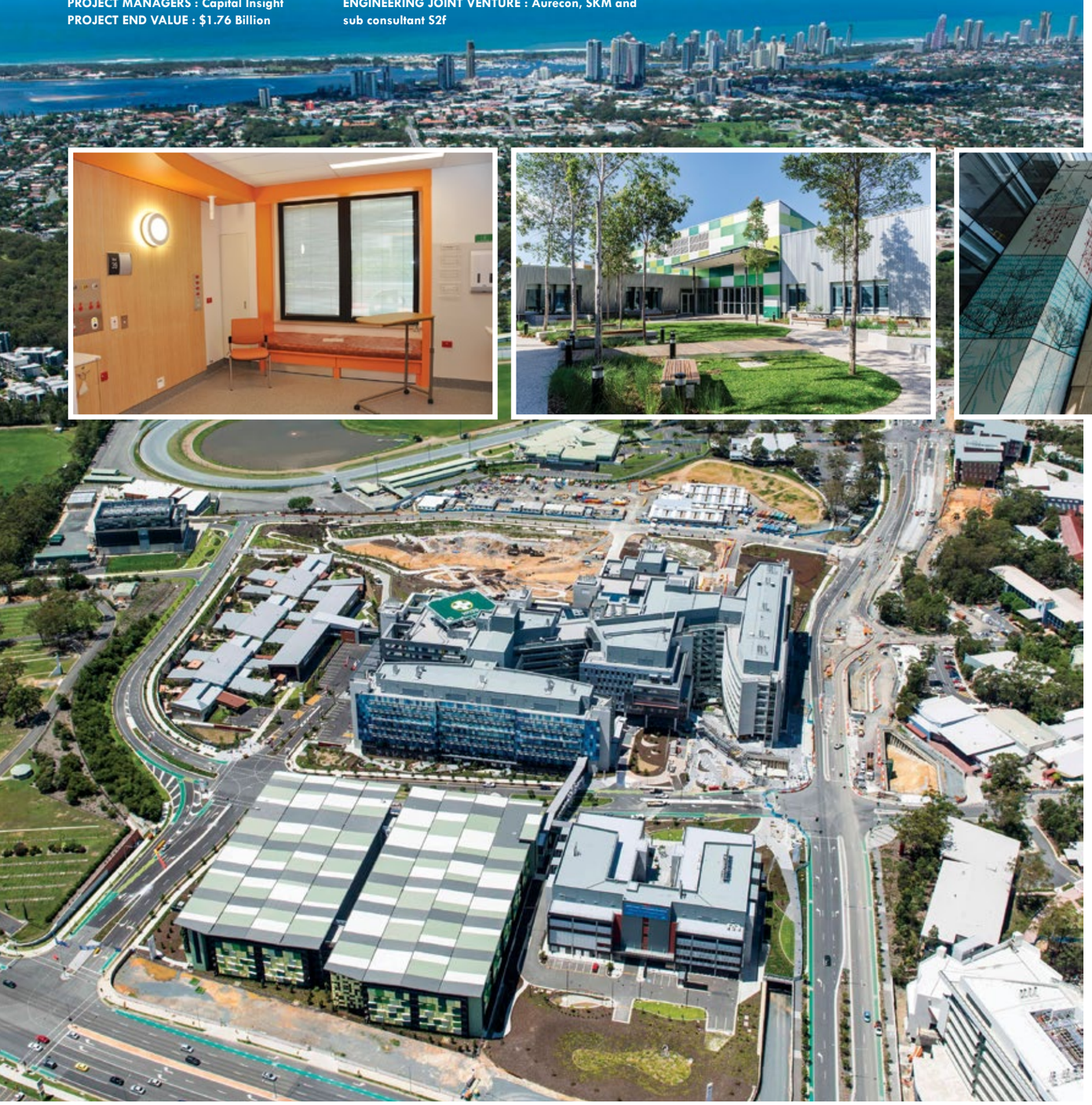
A MASSIVE UNDERTAKING MOVES INTO THE OPERATIONAL PHASE

CLIENT : Gold Coast Health
MANAGING CONTRACTOR : Lend Lease
PROJECT MANAGERS : Capital Insight
PROJECT END VALUE : $1.76 Billion

HANDOVER TO HEALTH SERVICE : FROM MARCH 2013
ARCHITECTS : PDT, HASSELL AND 2TH
ENGINEERING JOINT VENTURE : Aurecon, SKM and sub consultant S2f



The largest public health infrastructure project in Australia, the new Gold Coast University Hospital (GCUH), will deliver a range of benefits including improved health care services, magnified opportunities for research and healthcare education, and improved working conditions for hospital staff and specialists.

Further, its design and construction offered opportunities for integration with broad planning for significant public infrastructure, including the Gold Coast Rapid Transit and Griffith Health Centre construction. Through working with a range of stakeholders including Department of Main Roads and City of Gold Coast (formerly Gold Coast City Council), the GCUH has been firmly integrated into the wider Gold Coast urban environment.

"The introduction of the GCUH will mean improved access to a wider range of medical services closer to home (for people of the region); it is a specialist hospital with tertiary level services including a number of new and expanded health services which will minimise the need for travel outside of the Gold Coast to receive some types of medical treatment," said Gold Coast Health Executive Director Strategic Development, Mr Michael Allsopp.

"The GCUH is central to the City's planned health and knowledge precinct in the area. The opportunity of designing an entire hospital on a Greenfield site maximised the benefits that come with locating complementary medical services together."

These benefits include strengthening of public and private health services by promoting the sharing of facilities, staff and expertise; growing research opportunities; hands-on training for medical, nursing and allied health students; integrating wider infrastructure developments such as public transport; and driving other commercial opportunities such as retail and cafes.

Located on the corner of Parklands Drive and Olsen Avenue, Southport, the hospital will be one of Queensland's largest clinical teaching and research facilities when it opens in September this year.

The $1.76 billion, 750 bed facility has been an extremely complex undertaking, with seven main buildings including an energy plant. There is also a commercially operated multi-level car park with 2,229 spaces – all set amongst extensive landscaping on a close to 20 hectare site. The benefits of this design plan include the maximisation of the therapeutic benefits of a parklands setting; and promoting safe and vibrant public spaces with gardens, courtyards, walkways, bike paths and art works. There is also a Gold Coast University Hospital named light rail station adjacent to the hospital's entry for the new Gold Coast Rapid Transit System.

The hospital is equipped with a range of specialist equipment and state-of-the-art treatment facilities, and offer both an expanded range of services currently provided at the existing Gold Coast Hospital in Southport, and a range of new services. These include cancer radiotherapy, neurosciences, neonatal intensive care, and high level trauma response including a helicopter landing site and cardiac surgery.

"The opportunity of building a brand new facility has enabled a thoughtful design not only for patients, but also a modern workplace for staff," said Mr Allsopp.

"The design vision for GCUH includes improving the flow of patients through the facility; building design that can easily adapt to future modifications and expansion; and incorporation of environmentally sound design principles to minimise the carbon footprint of the facility.

"The project is particularly proud of its sustainable use of energy including centralising an energy plant within the site and exceeding the requirements as set out in Section J of the Australian Building Code. The energy-efficient facade and the use of heat recovery units throughout the main buildings of the hospital contribute to energy efficiencies.

"The non-institutional feel of GCUH is highlighted by a number of publicly-accessible internal courtyards allowing natural light to feature throughout the facility."

It was not only the scale of the project which made construction a challenge for Lend Lease. The construction was fast-tracked from the outset in order to deliver the hospital for the community, however the program needed to be flexibly designed so the latest medical equipment and other state-of-the-art technologies could be included at the latest stage possible.

"Design and detailed design with hospital stakeholders was undertaken years in advance of the final completed product. This means that many of the features and capabilities had to be agreed in principle and some assumptions had to be made, for example, the type of medical equipment that clinicians would have available to them five years on," said Mr Allsopp.

"The partnership with Lend Lease is a major highlight of this project."

This partnership assisted with successfully managing some of the other challenges, including site access delay, construction worker car parking, the interface with external stakeholders, and coordinating the number of resources needed to deliver a project of this size, including the coordination of project teams, tradespeople, vendors and many others.

Constructing this monumental project has required a massive combined effort by hundreds of clinicians, planning, design and building professionals, and at the peak of works, more than 2,000 construction workers on site. By the end of 2012 close to nine million man hours had been worked on the project to achieve practical completion. The GCUH will officially open to patients in September 2013.

The seven main buildings (excluding the car park) have a total floor area of 170,000 square metres, with the area of the ground floors of the main buildings equating to roughly 28 football fields. At the peak of works, ten tower cranes were operational on the site, which is the most number of cranes recorded on a building site in Australia.

Mr Allsopp said that one of the greatest opportunities the GCUH project offered was that of setting new benchmarks for similar projects around the nation, and the world.

"GCUH has over 70 per cent single patient bedrooms – the national average is 25 per cent single patient bedrooms. This will be the new benchmark for major public hospitals around the country," he said.

"We envisage that with the GCUH as a specialist facility, the Gold Coast will become known for its high standard of health education and research; attracting national and international students, skilled staff and researchers to the area."

TURN-KEY SYSTEMS WHICH SUSTAIN LIFE

In the hospital setting, a reliable electricity supply is literally a matter of life and death. Cummins Power Generation have ensured the new Gold Coast University Hospital has the kind of backup power system which will keep all the required systems functional if the main grid fails to deliver.

The scale of the $1.76 billion 750-bed hospital, the largest health infrastructure project under construction in Australia during 2011 and 2012, dictated the need for a system with substantial capabilities.

The new hospital will have a total floor space of 175,000 square metres – about the same size as 25 rugby fields. The facility comprises seven main buildings providing a range of services ranging from critical neonatal care through to neuroscience and cancer radiotherapy, all requiring absolutely reliable power for everything from lights and ventilation through to essential intensive care equipment.

Managing Contractor Lend Lease looked to Cummins to design, supply, install and commission a world-class fully-integrated system to sustain both patient load and core medical services, one which could guarantee continuous generation and supply, even through a grid-wide blackout or other catastrophic outage.

The emergency power system Cummins have installed in the hospital's central energy plant comprises four C3000 generator sets, with each genset having a continuous rating of 2.2 MW. The gensets are powered by Cummins' biggest low-emission diesel engine, the QSK78, a 78-litre V16.

The fully integrated system incorporates Cummins PowerCommand digital paralleling equipment, which provides mains paralleling to ensure uninterrupted transfers between the mains' supply and the hospital's generators. Mains paralleling also provides the high degree of voltage stability required for hospital operations, as unregulated fluctuations in power output can result in damage to sensitive equipment or compromise essential patient life-support and other systems, with potentially fatal consequences.

The system also incorporates a Cummins DMC300 digital master control system, which allows operators to monitor and rapidly respond to any potential disruptions in output, either during testing or in a live outage situation.

Cummins' technical expertise and the excellent reputation of their products was only part of the reason Lend Lease chose their team for the Gold Coast University Hospital project. The other aspect of Cummins which was invaluable for such a complex, massive undertaking, was the ability to work collaboratively with other stakeholders including builders, electrical contractors and other associated services to ensure the implementation of the back-up system was a success.

Cummins has a substantial track record in delivering world-class emergency power reliability, and a well-earned reputation for strong technical collaboration on large-scale infrastructure projects. The Cummins Power Generation team worked alongside Lend Lease personnel in addressing the requirements, developing specifications and designs and completing the final delivery and commissioning of the project's fully independent power solution.

The reliability and ease of deployment associated with Cummins' solution means Gold Coast University Hospital is well-placed to meet growing medical and health services demand in Queensland and broader Australia.

"The key reason Cummins was selected for the project was its ability to provide a total system solution – a turn-key power system," says Greg Monteith, Cummins Power Generation regional sales manager. "This results in greater power system reliability – obviously a critical factor for a 750-bed hospital."

Cummins Power Generation is a global provider of power generation systems, components and services with the expertise to deliver complete power solutions including; system design, project management and long-term power system maintenance and service. All major components such as engine, alternator, transfer switches and control systems are designed and manufactured by Cummins at facilities which have certified compliance to ISO 9001-2008 standards.

The integration of design and manufacturing means clients can rely on quality power solutions with rated performance and efficient operation. Cummins also has the largest service network in the South pacific, with 40 company branches, more than 170 dealers and a 24/7 Cummins Support centre staffed by the company's own trained technicians and parts professionals, capable of resolving issues

"The key reason Cummins was selected for the project was its ability to provide a total system solution..."

With 90 years experience in power generation, Cummins can match the right generating, transfer and control technologies with any project's power need – be it continuous, prime, peaking, standby, cogeneration or a complete turnkey power plant.

For more information visit Cummins Power Generation, website http://power.cummins.com

CREATING QUALITY SOLUTIONS WHICH ACHIEVE SECURITY AND ORDER

For over 65 years Dexion has been designing and manufacturing high quality storage solutions and specialist fitout items. Ongoing research and development has ensured the company can meet the needs of each new era, including the demanding performance specifications of a state-of-the-art facility like the Gold Coast University Hospital.

Dexion designed, manufactured and installed the Compactus® mobile storage units for the first stage of the hospital. These customized all-Stainless Steel Compactus® units were designed specifically for the storage of highly corrosive liquids. The Compactus® units also feature the integration of a 'floating' timber infill floor angle cut to fit within the contours of Dexion's unique Freetrack2 compactus tracks. To have manufactured these units from Stainless Steel is a unique achievement - both a first for Dexion, and as an installed item in an Australian hospital.

Up to 12 Dexion employees worked on the project, including installers, Sales Manager, Project Coordinator, Design Estimator and Product Development Manager.

Dexion also recently completed the largest powered Compactus® installation ever undertaken in QLD at the University of Queensland Gatton Campus; and are currently completing the delivery of a large quantity of lockers with corresponding seats and stands, and Compactus® units for a remote mine site project. These are required by the client to be delivered to site in a completely 'built up' form, to eliminate the need for on-site installation labour.

Established in 1947, Dexion has grown into a leader in their field. Their reputation is founded on their ability to design and manufacture products which solve storage problems in functional, durable and space-effective ways. Dexion is today a national supplier of a wide range of steel based storage requirements, supplying their quality products across sectors including industrial, commercial, health, education and government.

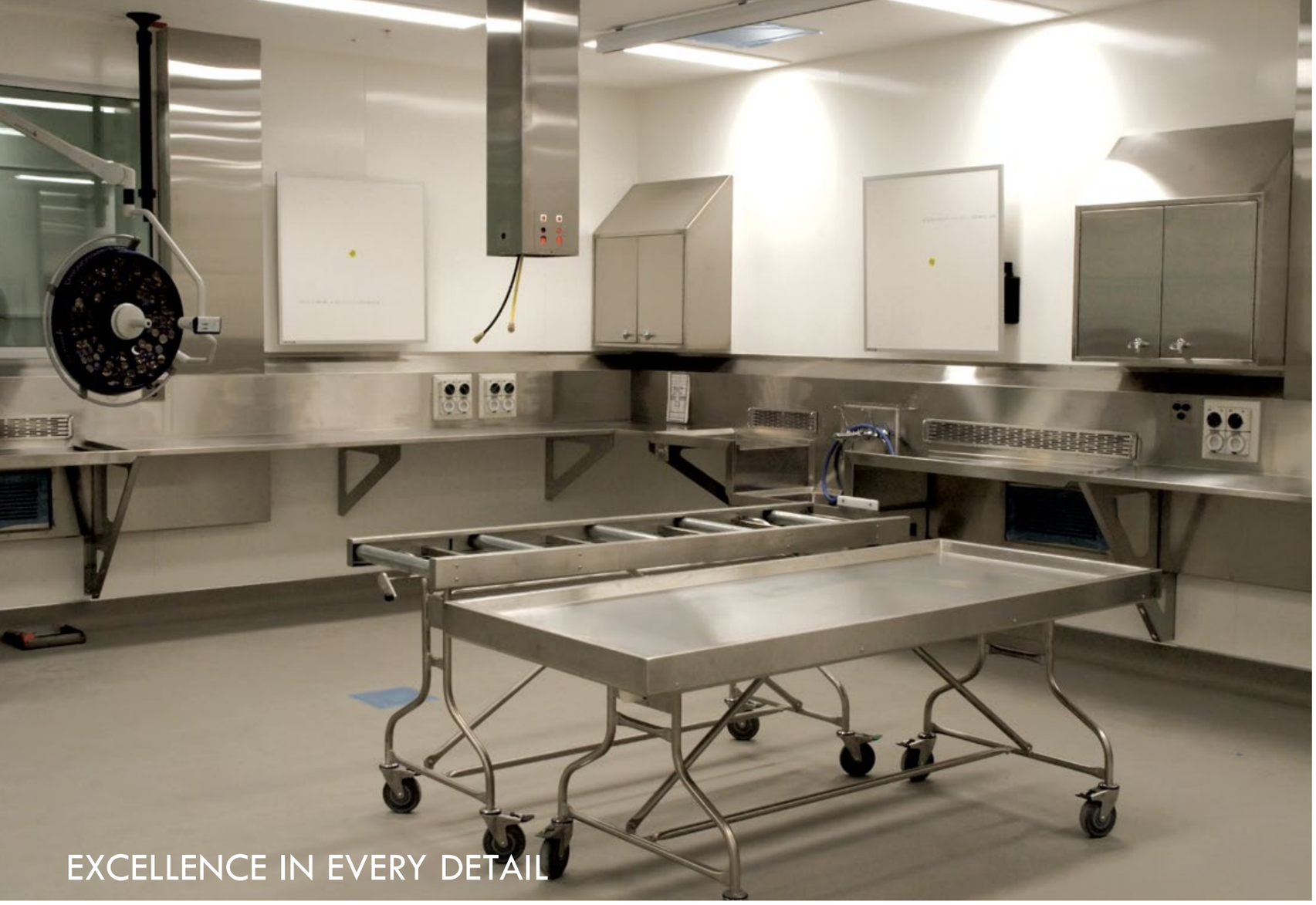
Many of Dexion's products carry the Good Environmental Choice Australia (GECA) label in recognition of their good environmental performance both in materials choice, and throughout the manufacturing process. Dexion storage solutions also have an innate sustainability aspect due to their long-term durability. The GECA endorsement is recognised by the Green Building Council of Australia, and offers an advantage for their clients in that GECA-endorsed products are more likely to carry 'deemed to satisfy' compliance status under GBCA ratings tools such Green Star Office Interiors. Every Dexion operation around Australia is compliant with the company's Environmental Management System, which is certified accredited to the International Standard ISO 14001: 2004, and a Quality Management System certified to comply with ISO 9001.

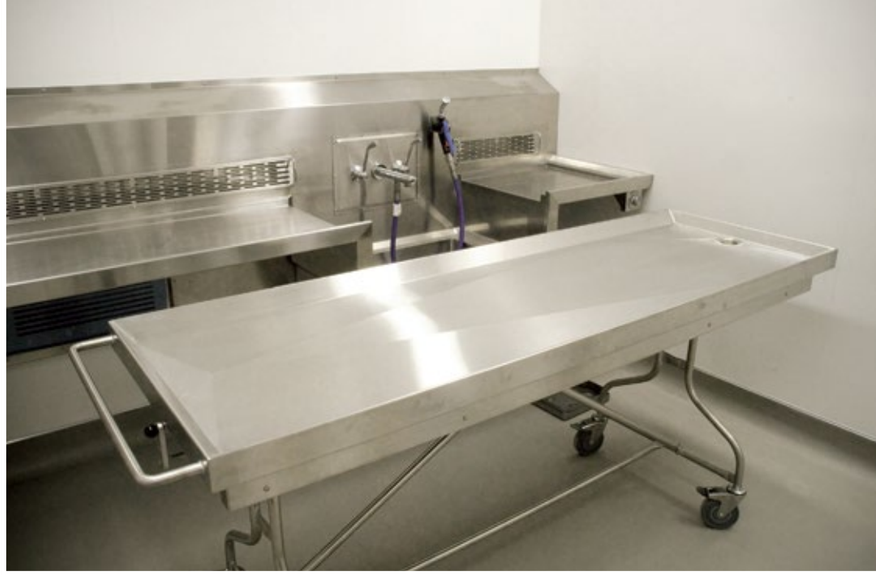
Dexion is an Australian company, producing storage solutions which are complemented by a range of specialist services. The company's major projects team focuses on the needs of specialist systems and large-scale commercial applications, while a network of 20 Dexion Supply Centres around the country meet the needs of SME's for fit-for-purpose commercial storage systems which deliver value and durability over the long term. Dexion's design, manufacturing and logistics base is in Sunshine, Victoria, with major project branches also operating in Sydney and Brisbane.

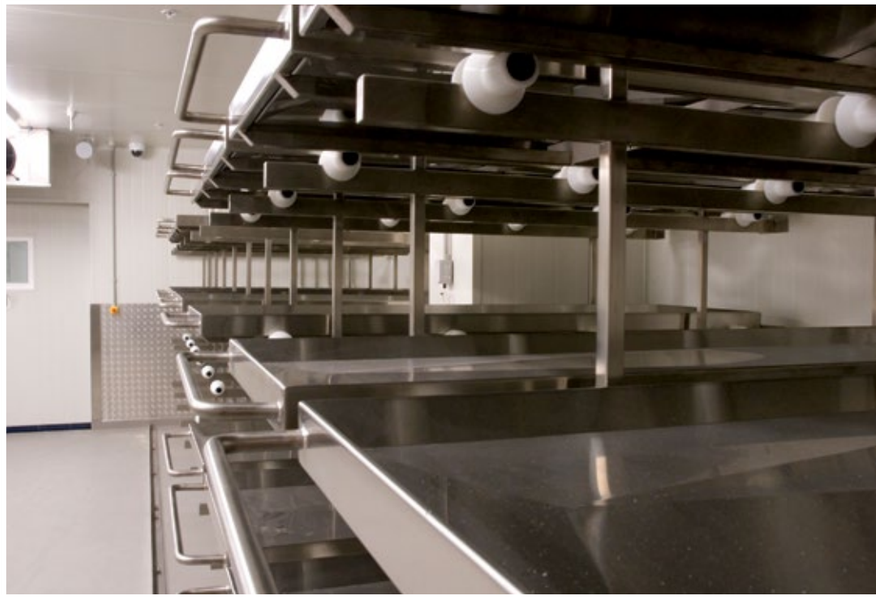
By working in close collaboration with their clients, Dexion ensures the most appropriate product, which will meet each project's specific needs, is provided within the necessary timeframes. Designs are adjusted where required, as they were for the Gold Coast University Hospital, with the company's high quality standards ensuring both the relevant construction and engineering requirements are met. A three-dimensional design program is used for in-house design, ensuring the end result will both do the required job, and fit the designated space functionally.

Whether the project is a major new development, a refurbishment or rationalisation of existing space and operations, Dexion can deliver the kind of storage solutions which keep everything safe, organised and in an appropriate space.

For more information contact Dexion on 1300 180 358, sales@dexionoffice.com.au or visit www.dexion.com.au,







EXCELLENCE IN EVERY DETAIL

From early beginnings in Melbourne, over 30 years ago, dedication to quality and meeting highly specific client needs has been the focus of ParMED Project's operations. The $1.76 billion Gold Coast University Hospital (GCUH) project has given the company a further opportunity to showcase design, manufacturing, project management and installation capabilities which can deliver excellent results for projects where there is no margin for error, such as the hospital and medical fields.

The GCUH also highlighted ParMED Project's commitment to clients, and the ability to collaborate with major developers such as Lend Lease in ensuring their scope of works – the mortuary fitout and equipment – were completed in a timely and successful manner. One of the major challenges encountered with this project was the requirement to undertake additional works which were outside of the original contract tender specifications.

"As we were the manufacturers of all the fit out and equipment components relating to the mortuary, we were able to facilitate both prompt replies and actions regarding any new requirements being recognized by the builder, thus helping to provide an almost seamless transition to the additional works whilst keeping the project on track within its time constraints," said ParMED Projects Manager, Peter Bailey.

"An innovation on this project was we used a new, non-toxic electric pickling system which removed the burn marks from all the welded surfaces in about half the time of that compared to a normal pickling process, and also produced a much better final finish on the metals as there were no bleaching marks.

"Although ParMED has typically focused itself in the areas of Forensics, Anatomical, Pathological, Mortuary and Laboratory fields in the past for fit outs, equipment and specialized stainless steel benching, our focus over the coming years will be to expand into other medical sciences and areas of opportunity within that spectrum.

"This expansion is part of the company's overall plan to cement itself as a comprehensive, premium supplier to the medical science community. Our ultimate aim moving forward is to not just to be known as a company who provides a product or a service, but as a company who provides solutions."

Other current ParMED Projects clients include the team constructing Cairns Base Hospital, and medical-related projects for the University of Technology Sydney, Monash University and Sydney University

Originally known as Hendicare, ParMED Projects is a division of The Shotton Group. The division conceptualizes designs and manufactures both equipment and capital fit outs, catering to a varied range of medical sciences including Anatomical, Pathological, Forensic, mortuary and laboratory applications.

The Shotton Group's flagship division is P&R Sheetmetal, which has a track record of more than 30 years in the Australian manufacturing sector. P&R Sheetmetal was founded by Roy Martin Shotton (1944-1999) in 1977. Starting out in a small factory from one of Melbourne's bayside suburbs with a staff of 11 people, P&R Sheetmetal quickly gained a reputation for producing precision and quality based products to meet their client's needs with ISO 9001 Quality certification since2001.

Since that time, P&R has been constantly acquiring new equipment and designing new processes to ensure that the company continues to successfully build upon this reputation, and has grown into a multi-division group employing 74 people meeting the needs of projects across Australia.

Other Shotton Group divisions include ParMED Products, which specializes in the direct sale of medical equipment and consumable items, and Shotton Lifts, which manufactures and sells residential, commercial and disabled access elevators. "Our infrastructure has been very much developed to meet a versatile array of project requirements, from complex one off prototypes, through to producing high volume production runs that are of world class quality," said Peter Bailey.

The company is focused on continually looking for ways to improve its capabilities, with ongoing investment in technology, peer networking, building the in-house skills base and seeking out new markets both at home and abroad.

For more information contact ParMED Projects, 139-145 Greens Road Dandenong South VIC 3175, phone 03 9791 6444, fax: 03 9791 6530, email peter.bailey@prsm.com.au

KEEPING WORKS PROGRAMS IN FINE FORM

Having the biggest public health infrastructure project in the nation to build meant Lend Lease needed construction solutions which could facilitate the massive works program. Oneform Group's expertise in effective, safe and simply formwork solutions was exactly the right medicine to expedite the process, delivering solid results and quality finish.

Oneform provided self-climbing formwork systems for the construction of the PED (Pathology and Education), CEP (Central Energy Plant) and MEH (Mental Health) buildings.

"The formwork we provided enabled the construction team on the PED building to form two cores at a time up seven stories, then the system could be quickly removed and set up at the other end of the building for forming the next two cores - before the first level was completed from end to end," said Oneform General Manager and Construction Manager, Paul O'Sullivan.

"This saved the builder time in the works program. The benefit our R-1 self-climbing form system offers is it is easy to set up and quick to operate. It can also deliver the class 2c off-form finish the specifications required. "In the PED building, the stairwell had a glass front, so there needed to be a high quality class 2c off-form finish inside and out."

Oneform had 60 staff including riggers, scaffolders, supervisors and formworkers onsite at the project for a year, erecting, operating, dismantling and shifting the formwork around the site as works progressed. The company also supplied their own formwork hoist, and used the lend Lease site cranes where craneage was required.

Oneform design and fabricate their own formwork systems, applying the experience gained from many prestige construction projects to refine the engineering of their systems and create effective solutions. The advantage of the R-1 design is the combination of easy, rapid erection and dismantling and the simplicity and speed with which it operates once in place.

The 150-strong workforce includes in-house engineers and drafting personnel, in-house steel fabricators, a team of qualified leading hand carpenters and trade-qualified carpenters, plus apprentices, formworkers including class 1/2c specialised crew, concreters, labourers, delivery, despatch and administration personnel.

Together, the team provide efficient and safe formwork solutions to projects across Brisbane, the Gold Coast, the Sunshine Coast and regional South East Queensland and Northern New South Wales. Simultaneous with the Gold Coast University Hospital project, Oneform also commenced providing formwork for a major highrise development in Brisbane.

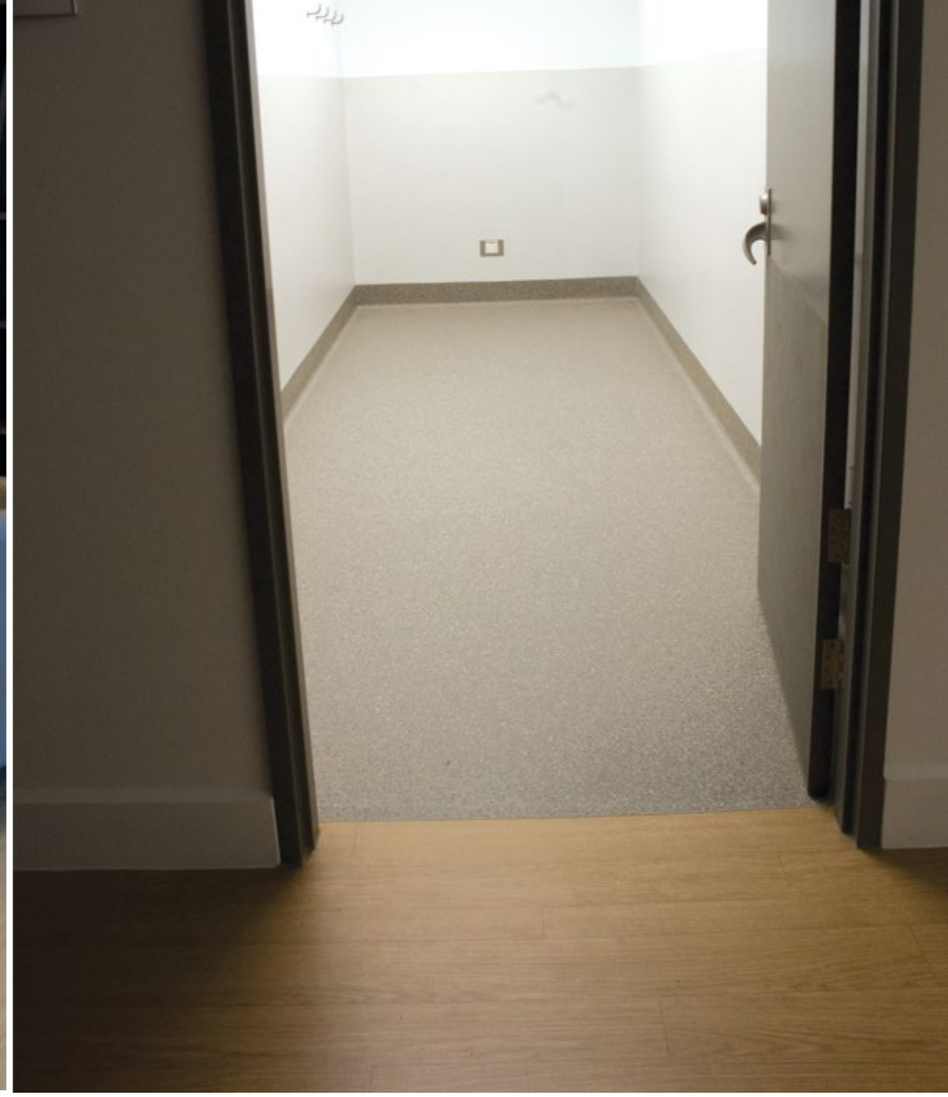
The Oneform steel fabrication workshop enables the company to fabricate a wide range of specialised formwork equipment, all engineered to the appropriate certifications and the highest standards of safety and quality. The services and products which can be provided include formwork shutters, column forms, safety screens, self-climbing formwork systems, specialised form, precast panels, and steel fabrication and erection.

Oneform Group has been in business since 2003, with their completed projects including commercial high rise developments, high rise residential projects, retail shopping centres, hospitals and education sector projects. They provided formwork for the Robina Hospital Expansion, the University of Queensland Engineering Building, DTAB Brisbane Airport, Wintergarden, Mackay Base Hospital, Gallipoli Barracks, Amberley Airbase, 111 Eagle Street and the Queensland Emergency Centre – just to name a few.

Oneform's comprehensive understanding of engineering formwork for specific situations, especially multi-level projects, gives them the capability provide solutions which resolve construction challenges. The company is continually innovating and developing improved formwork systems which empower teams to meet program milestones safely and within budget.

"We strive to maintain the very best customer service and believe through innovation, continual improvement and development of formwork systems and practices through our in-house engineering, and our 'never say die' attitude, we can provide our customers with the very best formwork solutions," said Paul.

For more information contact Oneform Group Pty Ltd, 396 new Cleveland Road Tingalpa, phone 07 3890 0249, website: www.oneform.com.au



EXCELLENCE UNDERFOOT

For a healing environment, every part of the fitout needs to contribute to the overall quality. What is underfoot is a key element, one Contract Floor Coverings (CFC) has decades of experience in providing. They ensured the new Mental Health unit at the Gold Coast University Hospital has floor coverings which are entirely suitable for their purpose, delivering a superior combination of performance and aesthetics.

CFC supplied and installed approximately 2800m^2 of Interface Carpet Tiles; 150m^2 of Forbo Anti Static Vinyl Tiles, 3 Nuway Recessed Entry Mats; approximately 2300 m^2 of Armstrong Floor Vinyl, 2200 m^2 of Armstrong Wall Sheet Vinyl, and 2500m^2 of Forbo Floor Vinyl. CFC also applied Cementitious screeds and beddings throughout the building, including Waterproofing to wet areas.

The products they supplied had to conform to the detailed architectural specifications and also comply with the project's Green Star rating. All the materials used are low VOC, and Armstrong World Industries also had a vinyl recycling program operating on-site, which received any offcuts the CFC team produced during the twelve month installation program.

A team of ten CFC installers worked on the project, supported by three administration and project management staff.

"A high level of detail and quality was required in the finished product," said Contract Floor Coverings General Manager, Duane Roe. "A unique aspect of this project was ensuring that the common areas and rooms were fit for purpose. As the project is a mental health facility, there are specific requirements relating to end-user safety in what products are used and how they are installed." "The main challenge was adhering to the strict works program while also producing high quality workmanship.

"The colours used through the building are nurturing and homely. Timber-look sheet vinyl has been used throughout the common areas of the building, which also adds a healing and calming ambience. All of the products installed in this building are high quality commercial floor finishes, with low maintenance requirements.

"The facilities provided by the builder were excellent and the general mood amongst the subcontractors was positive & supportive. Working on this project was a challenge at times, but ultimately a rewarding and educational experience. "Overall, the finished building is of a very high standard."

For 38 years, CFC has been providing projects across the health, residential, commercial, education, government, retail and general construction sectors with quality solutions to floor covering needs. The company's combination of dedication to servicing client needs, access to superior products and highly skilled installation teams has made them one of the leading commercial floor covering suppliers in Queensland and Northern New South Wales.

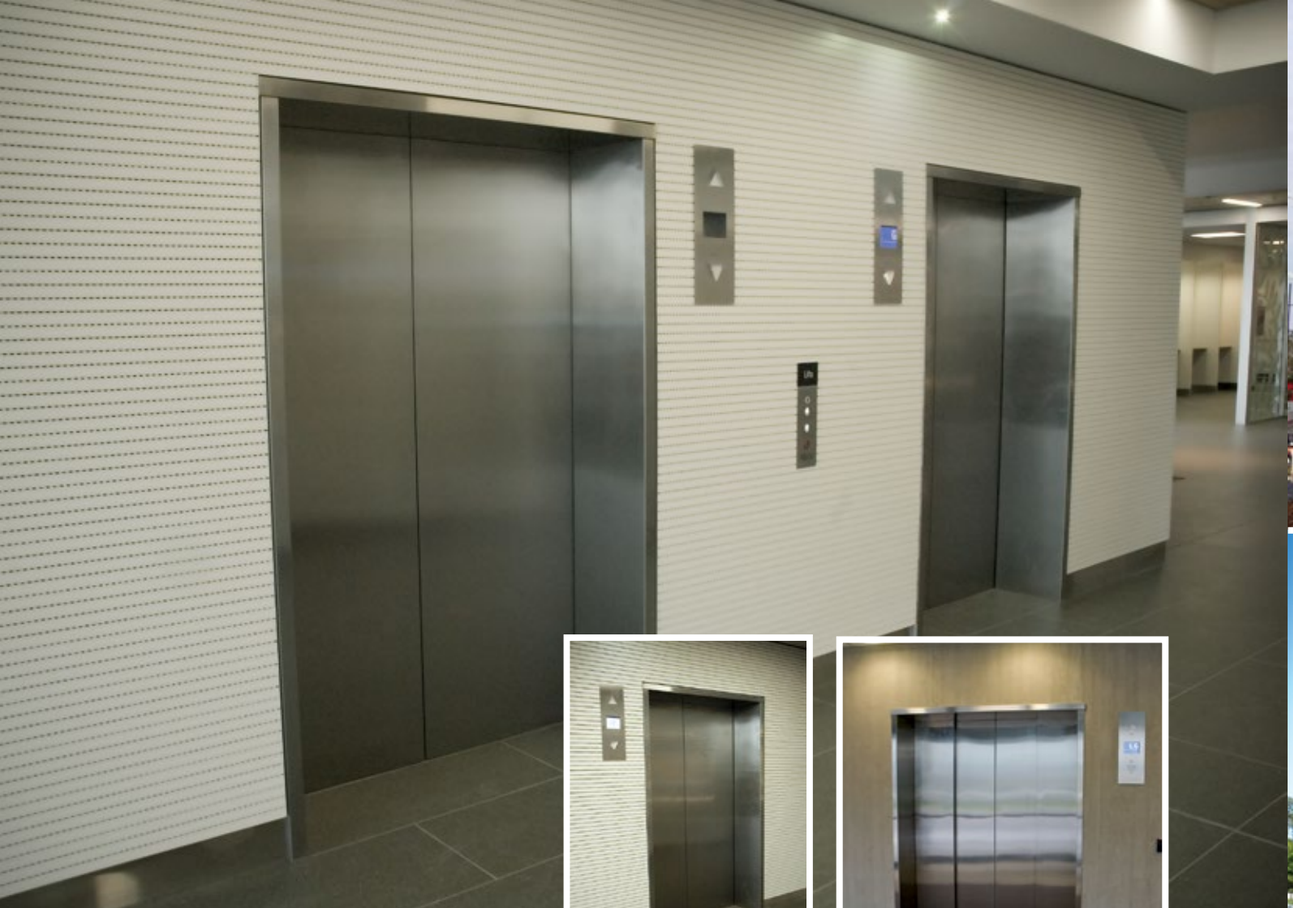
Other recent major health sector projects include the major upgrade of Rockhampton Hospital; Prescare Carina, a 180 bed aged care facility; and the Pindara Hospital Upgrade.

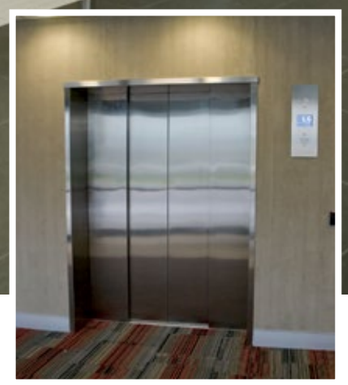
The range of leading brand products CFC can supply and install includes commercial carpets, modular carpet (carpet tiles); commercial floor and wall sheet vinyl, vinyl tiles and plank; linoleum sheet and tiles; commercial rubber sheet and tiles; static control sheet vinyl; flooring accessories; commercial rugs; carpet underlay; entrance matting; and stair nosings.

As the importance of Green credentials in projects increases, CFC has developed a comprehensive sustainability strategy. CFC support manufacturers that have a genuine commitment to environmentally sustainable initiatives. For clients this means access to a range of eco-friendly flooring options, including the new timber-look flooring, and installation techniques which include the use of low VOC contact adhesives, to protect indoor air quality. CFC also recycle all new vinyl off-cuts, old carpet tiles and vinyl tiles, to reduce the amount of waste going to landfill.

CFC has a skilled sales team with many years of experience in the field. This allows them to work closely with clients to assess what products will best suit their design vision and performance requirements. Being aware of the qualities of each product under different conditions, means they can give valuable advice about long-term maintenance. Clients can also be certain of the quality of the finished installation, with CFC's Quality Assurance system which is based on the requirements of the Australian Standard AS/NZS ISO9002:1994.

For more information contact Contract Floor Coverings, 3 Westerway Street Slacks Creek, Qld 4127, phone 07 3290 1422, fax 07 3808 5647, website www.contractfloors.com.au





LIFTING HEALTHCARE

In the company's largest single project ever undertaken in Queensland, ThyssenKrupp Elevator Australia (TKEA) have given the Gold Coast University Hospital all the benefits that go with world-leading design and efficient technologies for vertical transport.

TKEA supplied and installed a total of 27 Lifts, comprising 15 MRL Evolution lifts, 11 Overhead Traction lifts and one hydraulic lift, spread across the CSB Building, Ward Block West, ward Block South, the PED Building, MEH Building and CEP Building.

With such a vast and complex site to work across, a crew averaging 20 TKEA technicians and installers was required for 18 months to complete the scope of works. TKEA also dedicated a substantial amount of time to the planning, specifications and procurement phase, which commenced in late 2009. The scale of the project, and the required timeframes, were the two biggest challenges.

Unique aspects of the TKEA contribution to the project include the 4.8 tonne helipad lifts they sourced, supplied and installed; and the use of a regenerative drive on the Lift 15 Goods Lift. The regenerative drive is a sustainability technology, which feeds electrical energy back into the system.

TKEA also developed new, safer installation methods on this project, and safer tooling methods, as part of a broader introduction of new Safe Work initiatives.

"We have surpassed all expectations," said TKEA Project Manager, Mick Harrison.

"We also have upcoming Projects in Cairns Base Hospital – Block D, Rockhampton Hospital, the Central Energy Plant of the Mater Childrens Hospital in Brisbane.

"The advantage we offer our customers is they can deal with just one supplier for all their lift requirements. We also offer flexibility with software design and integration, and can customise our products to suit the client's needs especially medical and hospital needs. The combination of flexibility and German Quality and design makes our products unique, and guarantees a high standard of quality, where reliability is paramount."

TKEA has 416 Staff in Australia, with operations in all states and territories supplying a full range of products and services to the lift, escalator and walkway market.

For more information contact Head office ThyssenKrupp Elevator Australia, 18 Huntley Street, Alexandria, NSW 2015 phone 02 8303 9000, fax 02 9310 4446, email sydney.office@tkea.com.au

Queensland 46-48 Manilia Street, East Brisbane Qld 4169, phone 07 3252 4422, fax 07 3252 9036, 24hr breakdown 1300 652 899, email brisbane.office@tkea.com.au, websit: www.thyssenkrupp-elevator.com.au/en/home

CLEARLY THRIVING ON CHALLENGES

Having the combination of extensive manufacturing facilities and highly skilled design, engineering and installation expertise allows Yuanda (Australia) to deliver highly complex and customised facade solutions for projects like the Gold Coast University Hospital (GCUH).

The project's requirements were anything but typical. The design specifications called for a highly articulated façade incorporating many different façade types, and the construction program required that they all be designed, fabricated and installed within an extremely short timeframe.

Yuanda provided over 25000 m² of façade panels to the GCUH project, comprising high performance vision glazing, ceramic painted glass, composite sheet cladding and zinc cladding. This also included unique sunshading systems, especially on Ward Block West's western elevation.

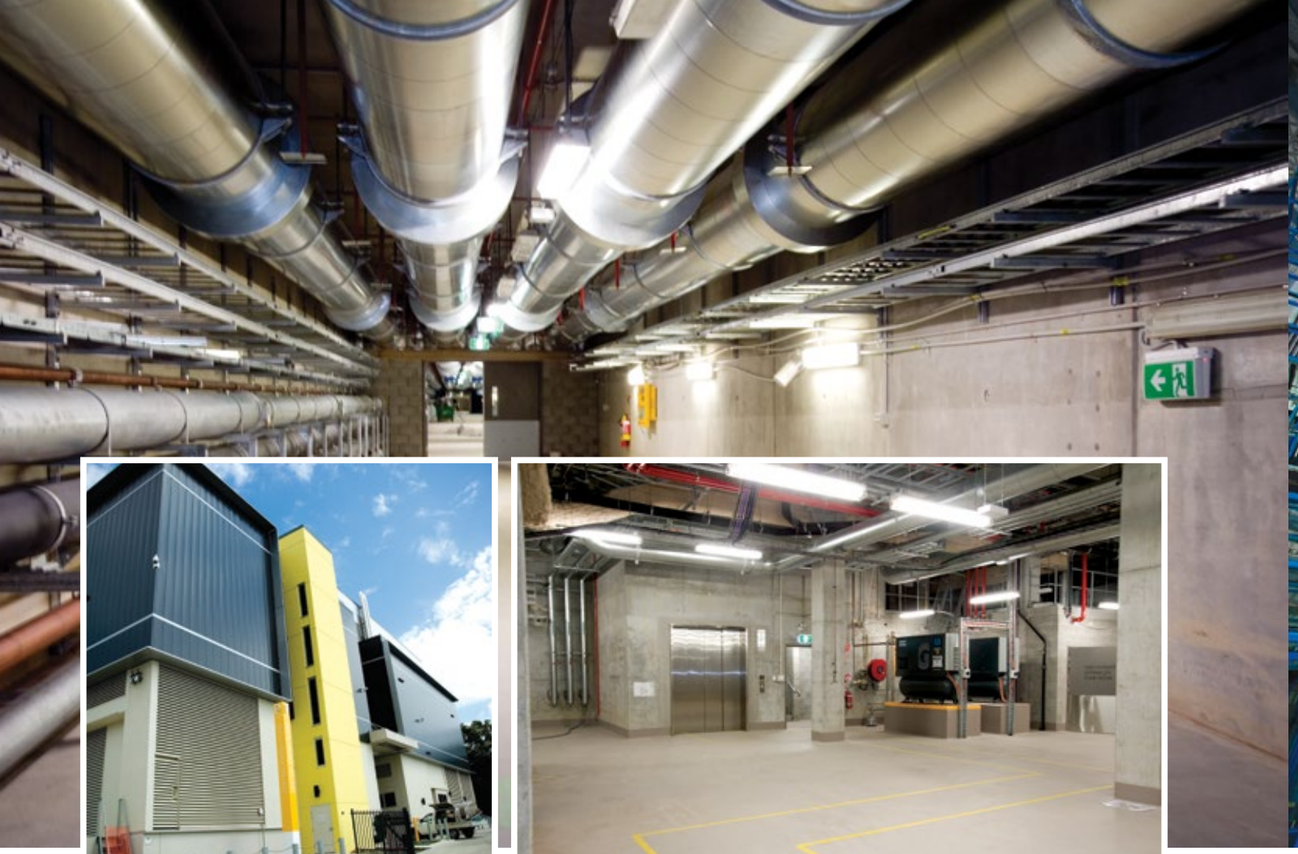
"These are in the form of panelised zinc curtain wall mounted in the frame. Another noteworthy aspect of this project was the use of framing members with a maximum deflection of 5mm (span/1000) to allow the GCUH to meet infection control requirements," said Yuanda Australia Managing Director, Paul Dawson.

"All facets of our installation have been designed and engineered in accordance with specifications outlined by the Architectural team and the Façade engineer (Arup), and meet and comply with standards outlined in Section J of The Building Code of Australia (BCA) "Yuanda have the skills and capacity to deliver highly complex and ambitious projects, with extensive offshore production facilities and local experts to realise the ambitions of our clients."

The Yuanda offshore design and fabrication team spent 12 months designing, fabricating and quality checking the facade elements, which was followed by a 16 month installation period with up to 55 Yuanda (Australia) staff on site at the peak of works.

Established in China for 18 years, Yuanda has produced cutting edge façade solutions for major projects across Australasia and the Pacific. The Australian operation was established six years ago, and has grown to 60 staff. Worldwide the company employs 15,000 staff across design, engineering, manufacturing, distribution, installation and client liaison. Other major Australian projects include Brisbane Supreme Court & District Court, 111 Eagle Street, Santos House, Westfield Sydney, 400 George Street, 123 Albert Street, and ANZ Docklands in Melbourne. Their track record has well and truly established Yuanda (Australia) as a forward-thinking and innovative company, who can take any architectural vision, and deliver a clearly brilliant solution.

For more information contact Yuanda Australia Pty Ltd, Suite 3/40 Brookes Street, Bowen Hills QLD 4006, phone 07 3251 6100, fax 07 3251 6150, website www.yuanda.com.au



ALL SYSTEMS GO AT GCUH

Just as a human body has a complex electrical network, so does a state-of-the-art facility like the Gold Coast University Hospital. PSG undertook a $28.7M electrical works package for the project, including early works and the HV infrastructure of the Central Plant, bringing to the task a powerful combination of experience, innovation and skill.

As a firm with capabilities extending across electrical engineering, equipment manufacture, installation, commissioning and maintenance, PSG were able to work with the construction team to ensure a technically appropriate solution, in a context where the scale was vast and timeframes tight.

PSG's remit included HV switchgear and cabling for intake; generators; NCS, chiller and site-wide infrastructure; transformers; RMUs; earthing; bus ducts; main switchboards; distribution boards; UPSs; submains; light fittings; and cabling. From specification through to completion took just over two and a half years. The HV works included some 59 x 11kV switchgear units, assembled into 6 x 11kV switchboards, which are used as protection for 3 x 11kV ring mains totalling several kilometres in length, and 14 ring main units interfaced with 4 x 11kV standby generators and 10 x 3.3kV supplies to 5 chillers.

PSG also provided an extremely complex Network Control System (NCS), the NCS features the largest dual redundant GE PLC system that GE have been involved with. This dual redundant system is comprised of 21 PLC cabinets featuring 9000 physical and 3000 virtual I/O points, dual redundant power, processing, data communications linkage and gigabit data highway connectivity. Excellent project management was required to resolve the logistical challenges of procurement and to manage the coordination with other trades required to achieve the program. The Queensland office of PSG began trading as Richard Flanagan & Co in 1987, becoming part of the Pacific Services Group (PSG) in 2006.

PSG holds third party accreditation for Quality Management to AS/NZS ISO 9001; Environmental Management to ISO 14001 and Safety Management to AS 4801:2001. Their intra-net based safety system won the company an OHS Award of Excellence and a commendation in the 2011 NECA Excellence Awards and the Overall Award in 2011 from BP.

Other recent projects by PSG's Queensland operation include the Brisbane Supreme and District Courts, and Lotus Glen Correction Centre.

With substantial manufacturing expertise, PSG are one of the nations' largest switchboard manufacturers. The company has also designed and developed an oil and gas-free Green Mini-Substation which is suitable for projects across all major construction sectors. From communications, data, fire, security and automation systems through to LV, MV and HV installations, PSG offers major projects the services, skills and equipment that switch on success.

For more information contact PSG, National Head Office 9/79 Chetwynd Street North Melbourne VIC 3051, phone 03 9321 7600, fax 03 9321 7688, email info@psgelectric.com.au
PSG, Queensland head office, 3/8 Metroplex Ave Murarrie QLD 4172, phone 07 3899 9300, fax 07 3899 8855, email murarrie@psgelectric.com.au, website www.psgelectric.com.au

HIGH EXPECTATIONS MET THROUGH APPLIED GLOBAL EXPERTISE

When Harsco Infrastructure Australia commit to a project like the Gold Coast University Hospital (GCUH), they bring global knowledge and state-of-the-art construction solutions to the job. For the GCUH, their contribution comprised the supply of 4,000 tonnes of scaffold and 200,000 manhours of skilled labour, who erected and dismantled 2,000,000m^3 of scaffold for edge protection, access and falsework across the project site.

"A new benchmark for safety was introduced by Lend Lease on the Gold Coast University Hospital Project. What this meant in practical terms for our scaffolding crews was a new approach of building in "1m lifts". This process involves placing the handrails for the deck above prior to the deck being placed, which drastically reduces the risk of falls from heights," explained Harsco Infrastructure Operations Manager, Rod Hampton.

"Harsco not only met this challenge, we proved it could be done efficiently. These 1m lifts have now become standard operating procedure for Tier 1 builders, and have become part of the broader construction industry vernacular."

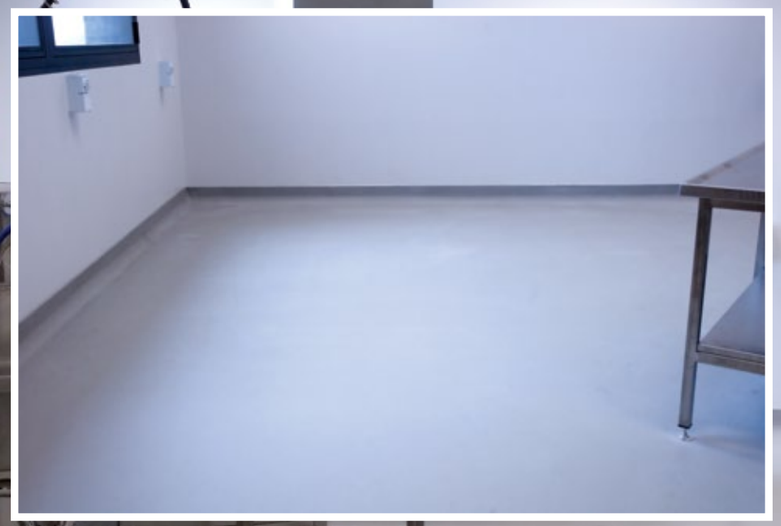
Harsco also has excellent falsework capabilities, and has been contracted by Lend Lease to complete all the falsework on the Ipswich Hospital Project. This amounts to 18,000m^3 over 3,000m^2, built on sloping natural ground with heights ranging from 4m to 12m.

Other recent Lend Lease projects Harsco have contributed to include the Brisbane Supreme Court and District Courts; Ipswich Hospital Expansion; Brisbane Airport Expansion; Logan Hospital Expansion; Sunshine Coast University Hospital; Enoggerah Army Barracks; and the Millennium Arts project at Brisbane's GOMA and State Library.

Harsco Infrastructure provides a full range of construction solutions, formwork and industrial maintenance services across the commercial, healthcare, industrial and resource sectors. This broad spectrum of specialized capabilities also includes blasting, painting, insulation and site services, with a dedicated team of in-house designers, project managers, safety advisors and operatives delivering optimum solutions which add value for construction and industrial projects of any scale, anywhere in Australia.

Globally, Harsco operates in over 60 countries, has over 20,000 employees and operates to the highest standards of safety, environment, anti-corruption, ethics, and human resource management.

For more information contact Harsco Infrastructure Pty Ltd, Unit B, 49 Boundary Road 4106 Rocklea QLD, Australia, phone 07 3713 3333, website www.harsco-i.com.au



THE SKILLS WHICH PROTECT EVERYONE'S WORKMANSHIP

When millions of dollars are being invested in a project, protecting the built asset is paramount. Polyseal are experts at ensuring the elements, foot traffic and other unpreventable factors do not compromise the quality of finishes or structural soundness, through access to the most comprehensive range of products for waterproofing, joint protection, structural strengthening, coatings and concrete protection. The company's extensive product knowledge, highly experienced applicators and understanding of the construction process means projects such as the Gold Coast University Hospital (GCUH) could rely on timely, effective and defect-free services tailored specifically to the projects' unique needs. As Australia's largest public health infrastructure project, the GCUH required a high level of commitment and flexibility. The strength of Polyseal's project management ensured that despite the challenge of seven major buildings spread over a massive site, all at different stages of construction over a period of several years, the project's needs were met to the highest possible standard.

Polyseal's skills have earned them an increasingly large share of major projects nation-wide, including such landmark hospital projects as the Royal Children's Hospital in Melbourne, the new Children's Hospital in Perth, Royal North Shore Hospital, the Macquarie University Hospital, and currently the Fiona Stanley Hospital in Western Australia, which is the largest building waterproofing project undertaken in Australia. In addition to the waterproofing, Polyseal's scope at the Fiona Stanley also includes insulation and decorative gravel. No matter how challenging a project's technical challenges may be, Polyseal have the expertise to formulate and apply the correct solution, whether it's a trafficable helipad for a busy hospital, the waterproofing of a major commercial office project, or floor coatings for a high end retail destination.

Polyseal began operating in 1989, supplying waterproofing services across all major construction sectors. The company's capabilities have grown to include concrete repair works; carbon fibre and other forms of structural strengthening; cathodic protection and prevention; jointing; coating application to steelwork and concrete structures; epoxy flooring; fire service upgrades; pile wrapping; rail line reinstatement and re-grouting; minor civil works and associated general construction. The company maintains working alliances with major manufacturers and suppliers worldwide, which ensures every project is able to access the best possible solution for the specific project needs. In 2012, Polyseal achieved ISO9001 Accreditation, a guarantee of best practice in safety, environmental protection and quality workmanship.

For more information contact POLYSEAL - NSW (Head Office), Level 1, 305 Princess Hwy, St. Peters, NSW 2044, phone 02 8595 8600, fax 02 8595 8661, website www.polyseal.com.au

BRINGING THE WORLD'S HEALTHIEST TILES TO GCUH

With access to the world's best manufacturers and a wealth of experience in specifying the right tiles for any situation, Metro Tiles ensured those used for the Gold Coast University Hospital are not only lovely to behold, but also ecologically sound, durable, easy to maintain and in harmony with the overall healing design aesthetic of the Hospital.

The 'LEED' compliant Ecotech Italian Porcelain Stoneware supplied by Metro Tiles to all main trafficable walkways in brilliant formats – (the main being 600x1200), two colours and surfaces including natural for internal and structured for external applications ensured a perfect seamless flow throughout all areas.

Extensive collaboration with architects, designers and developers sharing expert technical advice and great ideas throughout the specification process provided the perfect result to this significant Australian project. Metro Tiles' excellent management and logistic experience also ensured delivery of products in a timely manner.

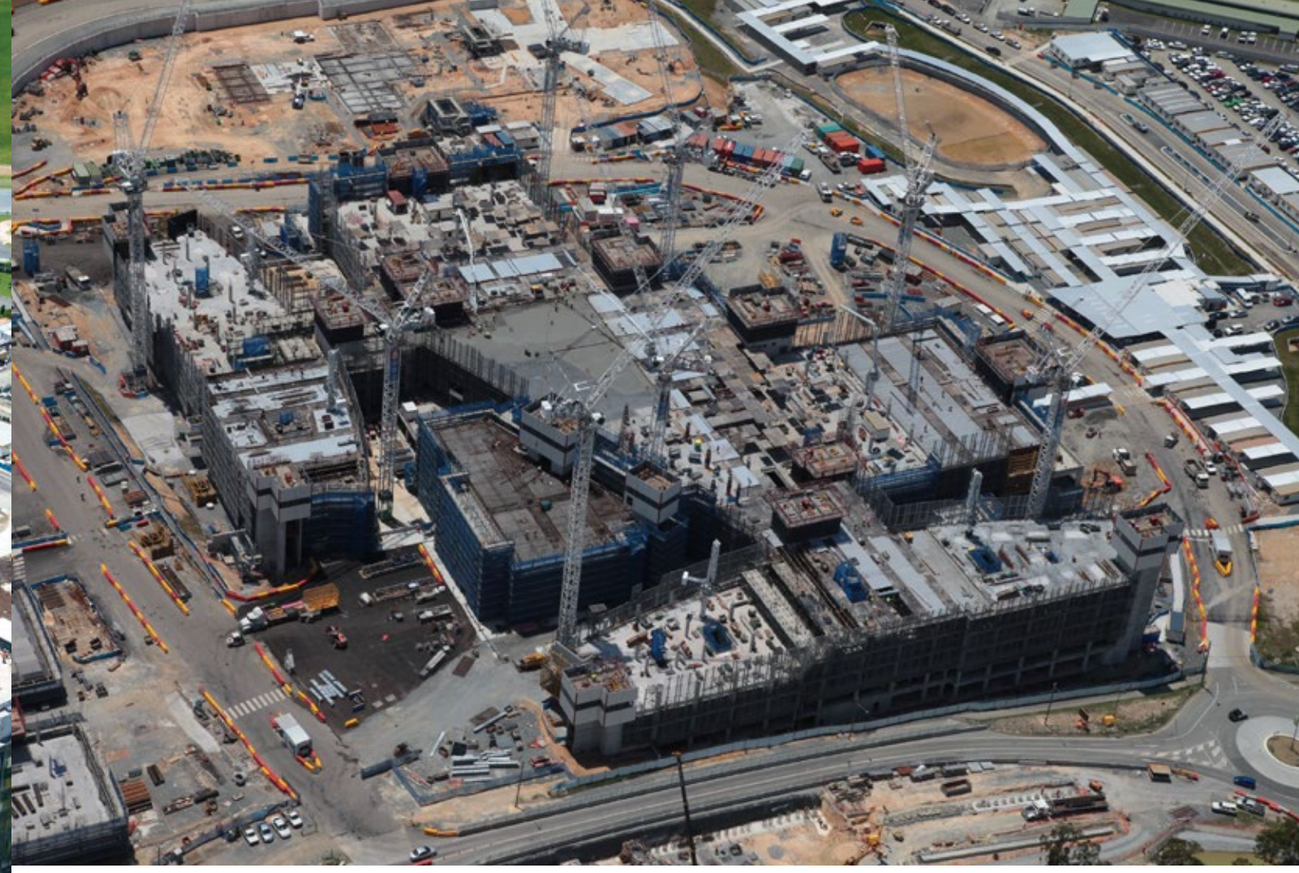
"Metro Tiles' products incorporate many 'Green' initiatives such as the Ecotech tiles supplied for this project. It's superior features include hygienic safety, durability and environmental stability together with its aesthetic beauty – making them ideal especially for high traffic areas throughout the hospital," explained Metro Tiles Director, Lorenzo Colussa.

"The Gold Coast University Hospital is a truly beautiful and inspiring structure, mainly due to the very talented PDT design team", say's Lorenzo. "The biggest impression I received during onsite inspections was that this is certainly not your average hospital. Many I've seen in the past feel quite sterile and clinical whereas the GCUH is totally the opposite, very inviting, warm yet contemporary. A place for healing and recuperation in the best possible environment, that also caters very well for visiting family and friends."

Metro Tiles are passionate about providing their clients the best possible results, from initial selection of product from anywhere in the world, through to project completion. Their extensive knowledge of products and fifty-year manufacturer relationships is matched by a level of staff professionalism creating outstanding results and total customer satisfaction.

For more information contact Metro Tiles Corporate Office, 192 Granite Street Geebung Brisbane Qld 4034, phone 07 3216 5800, email lorenzo@metrotiles.com.au, website www.metrotiles.com.au

An aerial view of the $1.76 Billion Gold Coast University Hospital development, QLD



ENSURING EVERYTHING RISES ACCORDING TO PLAN

As the Gold Coast University Hospital was such a massive undertaking, an enormous amount of lifting needed to be undertaken. Southern Star Crane and Hoist (SSC&H) supplied Lend Lease with all of the project's vertical movement requirements, with ten tower cranes and a total of ten car man and materials hoists, comprising nine twin car hoists and one single car hoist.

This equipment was supervised, managed and manned by a highly experienced and safety-focused site team of a tower crane manager, two tower crane coordinators, a thirty-strong crane operator labour-force and twenty hoist operators, ensuring everything was lifted smoothly, efficiently and without incident. At the peak SSC&H had 55 employees onsite, supported by five external site management staff.

"The challenge was managing and coordinating the daily site structure and fit out deliveries," said Southern Star Crane and Hoist Spokesman, Glenn Osborne.

"We have been working closely with Lend Lease in keeping up with the demand for shifting of all the required structural materials for the trades as they needed it. We would like to take this opportunity to thank Lend Lease for the opportunity to be involved in such an iconic and successful nationally recognised project."

SSC&H's cranes were in use on the project for an average of 107 weeks programmed duration per crane, with the final tower crane dismantled in August 2012.

"The project from a tower crane and man and materials view point was managed by Lend Lease very well. All our cranes ran the full programmed duration plus or minus a week," said Glenn.

SSC&H began supply of lifting equipment to projects in the booming South East corner of Queensland in 2008, under the name Lewis Equipment. This was changed to Southern Star Crane and Hoist Pty Ltd in November 2011. Currently the company has 85 employees, including office and management staff, tower crane operators, dogmen, and personnel experienced in tower crane and hoist erection/climbing and dismantling rigging works. The company's six core managers have in excess of 135 years combined experience in the construction industry, with highly developed expertise in tower cranes and man and materials hoists.

SSC&H operate 100% electric tower crane and man/materials hoists, with an inventory of 25 tower cranes, both flat jib and luffing jib; and 35 hoists, both mid and high speed. All are backed by 24/7 mechanical breakdown and maintenance assistance.

Currently, SSC&H are operating on projects from Cairns to the Gold Coast, including Queensland Children's Hospital, Cairns Base Hospital, Sunshine Coast Private Hospital, Ipswich Hospital, Rockhampton Base Hospital and Private Residential high rise developments.

For more information contact Southern Star Crane and Hoist Pty Ltd, Contact: General Manager, Ricky Tomasel. Mobile 0418 898 131. Or the office on (07) 3271 4008.