

# MATER HOSPITAL

ABIGROUP

WOOLOONGABBA, QLD







## PICTURE OF HEALTH

Brisbane's Mater Hospital is receiving a \$188 million makeover and is set to transform the already bustling facility into the busiest obstetrics hospital in Australia. Abigroup Contractors took on the challenging project as the managing contractor for the construction of the new Mater Mothers' Hospitals and for the extension, and refurbishment of the Mater Adult Hospital.

The project posed a somewhat unique challenge in that the Mater Hospital required complete functionality during the construction period. This meant that a great deal of planning was required before construction could begin.

Abigroup worked closely with engineers and consultants to create a detailed plan for the redevelopment to ensure that every layout and construction issue was considered before any problem arose. This, coupled with the expertise and experience of Abigroup, has ensured a great final result.

The new mothers' building is 2500m<sup>2</sup> per floor and has been built over the existing ambulance forecourt. The continued operation of essential services, such as ambulance access and the emergency room was imperative. So the existing precast floor system was used to allow services to continue without interruption throughout the entire construction process.

Timing was another major factor during the construction period as surgeries and operations had been booked well in advance and could not be altered. Abigroup's continued commitment to developing strong working relationships with the development team ensured that everything was on cue.

The great teamwork between Abigroup and the Brisbane Mater team meant the complete demolition and construction was able to take place right next door to theatre operations. Abigroup studied the operational requirements of the hospital to allow for both businesses to operate concurrently.

Abigroup's skill and expertise in the development of these projects has come from years of hard work and a commitment to quality. The organisation specialises in a range of large scale engineering and construction projects in many sectors, including residential and infrastructure developments.

Some recent project examples include the Royal Brisbane & Women's Hospital, Epworth Eastern Hospital in Box Hill, Ipswich Court House and Pacific Square in Maroubra.

Abigroup Contractors is a major engineering and building construction group in Australia. The company has earned a reputation as one of the leading multi-service construction companies through its dedication to delivering quality products and services. The committed team at Abigroup are also industry leaders with years of experience.

Abigroup has been providing services to Australia for over 40 years and strives to deliver every project on time and on budget, but with an emphasis on quality and sustainable development.

A number of designs were employed for the Mater redevelopment to maximise efficiency, such as the use of natural light and outdoor spaces to reduce the need for artificial lighting. Water harvesting, energy saving technology and the use of natural materials have all played their part in ensuring the new Mater Mothers' Hospital's embraces ecologically sustainable principles for the benefit of future generations.

The completion of the Mater Hospital redevelopment project marks the dawn of a new era. It is to become the premier obstetric

hospital in the Southern Hemisphere, providing health services to women and newborn babies from all over the pacific region, with the potential of 10 000 plus births per annum.

The constant support and cooperation between Abigroup and the Mater team meant the project was completed without any serious setbacks or issues. The Mater Hospital Project is testament to the Abigroup's skill as a quality construction group. Over 600 000 man hours were completed on the project with no serious injuries.

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## VIEW FROM THE TOP

Redeveloping a busy, fully functional hospital is no easy task. It requires the expertise and skills of an experienced project management consultant. With a 24-year track record of delivering complex projects in areas such as health, education, research and justice, Atkinson Project Management (APM), a division of Connell Wagner Pty Ltd, was the perfect company to take on such a challenging role for the redevelopment of Mater Health Services South Brisbane campus.

This complex project posed a number of project management challenges. The Mater Health Services South Brisbane campus required uninterrupted functionality during the building of the new Mater Mothers' Hospital and refurbishment of the Mater Adult Hospital. The new Mothers' Hospital was to be constructed directly over the emergency ambulance forecourt in which ambulance access was required 24 hours a day. The major refurbishment throughout the Adult Hospital included a five stage redevelopment of the theatre complex with operations often underway on the other side of the wall to the construction site.

"Mater staff have been extremely cooperative during this intensive redevelopment of our campus and APM's know-how, professionalism and dedication have made this complex project a success", said Dr John O'Donnell, CEO Mater Health Services.

APM's commitment to forming close working relationships with the project's client, contractors and consultants ensured any construction issues were identified and resolved early. Constant communication with the client and project team has been a key attribute of APM's ongoing project management success. Gaining the cooperation of the staff and patients at the Mater has been fundamental to this project.

APM was founded in 1983 with the project management of the internationally acclaimed Walter and Eliza Hall Institute of Medical Research in Victoria. It has since continued to deliver an abundance of high quality projects, and in 2007 merged with one of Australia's best known multidisciplinary engineering and project management consultancy firms, Connell Wagner.

This merger has allowed APM to strengthen its already growing base of project managers and provide a comprehensive range of additional services, from engineering services to business case development.

APM has a broad portfolio of significant current projects including the redevelopment of the Walter and Eliza Hall Institute of Medical Research and the Austin Repatriation and Mercy Hospital Relocation Project. Their recent engagement as Project Managers of the \$700 million Queensland Children's Hospital project in Brisbane is further testament to the expertise, professionalism and skill of APM.

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## CONSTRUCTIVE CONSULTING

Health, wellbeing and safety are of the upmost importance in any hospital and as one of Australia's leading provider of specialist building services in the consulting engineering industry, Bassett was the perfect option to take on the challenging Mater Hospital redevelopment in Brisbane.

Bassett provided core engineering services to the Mater project including mechanical services and medical gases. The redevelopment of the Mater Hospital involves the construction of a new Mother's Hospital and a major refurbishment of the existing adult hospital. This will add an additional 150 hospital beds for patients with the potential for 10 000 births per annum.

Bassett worked closely with the Mater's managing contractor Abigroup and project director Atkinson Project Management on a detailed plan, to ensure that the project would

be completed on time and on budget. This was particularly important for the Mater Hospital as the facility required full functionality during the construction process.

Bassett has been providing specialist services to Australia for over 75 years and specialises in comprehensive integrated services for design, construction and the ongoing management of major building projects.

Bassett also provides engineering services in allied disciplines of electrical, fire, lifts and acoustics. Complex studies such as dispersion modelling of the Mater's generator exhaust stacks were possible via Bassett's in-house applied research group.

The experience of Bassett in working on challenging and sometimes unusual projects, has meant that the organisation has a firm understanding of what is required with the

preparation of each individual project.

The Mater Hospital was open during the entire period of construction. The organisation consulted regularly with the Mater team to ensure the development was completed in an efficient and timely manner.

Bassett has a vast wealth of experience in these projects. Some recent examples include Royal Melbourne Hospital, the Princess Alexandra Hospital and the Austin Mercy Hospital Redevelopment. Their involvement in the Mater Hospital Project further cements Bassett as one of Australia's leaders in building services consulting.

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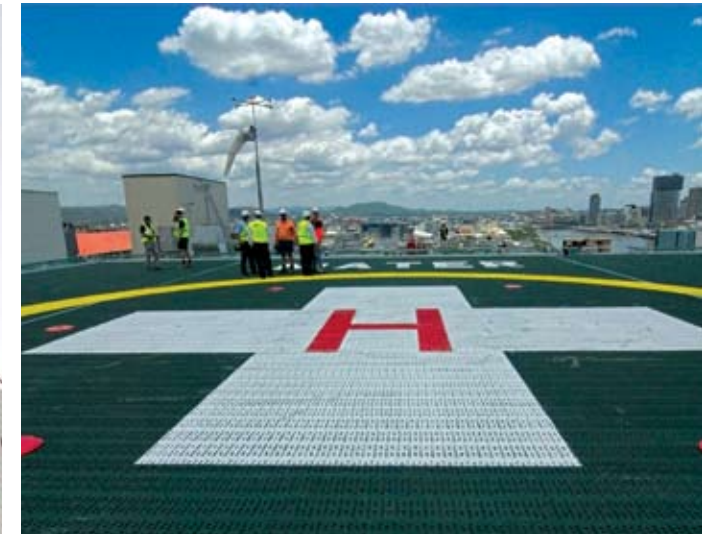


# A GLOWING REPORT

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# BUSINESS AS USUAL



The \$165 million Mater Hospital redevelopment has incorporated the latest in design and technology to create an advanced and innovative hospital that is set to inspire future developments. With the involvement of Building engineering specialists Steensen Varming, the project has taken on a whole new level of quality and innovation.

Steensen Varming designed the electrical services for the Mater Hospital, including communications, security, lighting and power reticulation. Lighting was an important aspect in their design for the Mater Hospital redevelopment, as this can go a long way to influence a patient's health and wellbeing. Their lighting philosophy is driven by creativity and backed by knowledge and collaboration.

The skills employed by Steensen Varming has also put the organisation in a unique position to

comprehensively deal with some of the world's most important issues, such as climate change. They have taken on an ethical commitment to integrate appropriate sustainable initiatives in all their work.

A number of environmentally beneficial designs were incorporated in the Mater Hospital redevelopment such as energy efficient lighting. For the external façade lighting LED lights were used. Switching off lights has been arranged to allow 1/3 of circulation space lights to be switched off at night. This reduces power consumption and saves significant amounts of energy.

Since winning the commission to design the Sydney Opera House in 1957, Steensen Varming has been at the forefront of building engineering services in Australia. It has now grown to be Australia's leading health care designer.

The continued affiliation of the Varming Alliance, which includes offices in Dublin and London, enables the company to provide a benchmark that rivals the best international professional consultancy organisations. This has also meant that a vast array of building services engineering can be provided to Australian clients.

Steensen Varming is not confined to a particular expertise; it encompasses all the processes involved in the creation and proper functioning of a building. Their further commitment to building and maintaining strong working relationships with clients and architects has seen the company gain tremendous success worldwide and ensures that even the smallest detail, from planning to operation, is accounted for.

Keeping a hospital in continuous operation during a major redevelopment project is always a challenge. For Sinclair Knight Merz (SKM), the \$165M redevelopment of Brisbane's Mater Hospital complex required drawing upon the firm's global pool of design skills and long experience of providing quality project delivery.

SKM was the obvious choice as consultant to provide the hydraulic and fire protection services for the project. This included a comprehensive range of design tasks, as well as ongoing site observations during construction. The scope covered all the new plumbing, drainage, natural gas, water, fire hydrants and automatic fire suppression systems.

SKM came up with a design that allowed the Hospital to stay fully operational 24 hours a day, including the ambulance and emergency

departments. This included an alternate cold water design, which in turn prevented the need to close all access roads around the hospital.

The construction of the new roof helipad on the existing Mater Adults Hospital required specialist services to address the inherent risks associated with aviation fuel contaminating the roof and drainage system in the event of an accident. A low level pop-up fire suppression system and self-contained drainage system was designed to effectively manage these risks.

Being involved in the hydraulic side of the Hospital's redevelopment gave SKM the opportunity to implement water conservation technologies that reflect the drought restrictions that have been felt so keenly in south-east Queensland of late. SKM's commitment to sustainable design saw the inclusion of a roof water harvesting system for the Mater

Mother's Hospital, with the collected water being diverted to sanitary flushing.

The high-quality outcome of SKM's work on the Mater Hospital has not gone unrecognised. The firm is now undertaking major health work throughout Queensland across all engineering disciplines. This further strengthens the reputation of SKM as a leader in consulting engineering and project delivery.

SKM is a global project delivery company that has been operating for over 40 years. The firm has built a strong reputation for achieving client success through a commitment to providing high-quality, innovative design and outstanding service. SKM employs over 6000 staff globally and offers a complete suite of engineering disciplines.





## SUPERIOR EXTERIOR

The \$165 million Mater Mothers Hospital redevelopment project will provide additional beds and extra facilities to Australia's largest maternity hospital.

For the Mater Mothers Hospital project ACLAD were responsible for the Alpolic FR cladding, the Kingspan Wall Cladding and the Creaton Tile Wall Cladding.

Architectural Cladding Solutions Pty Ltd (ACLAD) were able to provide a solution to the problem facing the architects and builders in where the original façade specification was not able to meet the functional requirements of the design life of the building. ACLAD designed a completely new façade to the one originally specified, and created a pressure

equalized system that has a design life of 50 years. The original design consisted of paint and panel finishes with a life of only 20-25 years, which is very impractical for an extremely busy and maintenance sensitive hospital.

ACLAD used many high quality materials to achieve the 50 year lifespan, including Alpolic FR 6mm for the external skin. Fluoro-polymer paint technology comes as standard on Alpolic - there is no other paint technology in the world that comes close to the 50 year life expectancy of this paint.

ACLAD are a relatively new company, having only been established for 2 years, however their team of industry experts have been in the composite cladding industry for over 10 years.

Their professionals have a wealth of knowledge and expertise that has been vital in the success of ACLAD over their short existence.

ACLAD, together with the Façade engineer and systems specialist designed and implemented an aluminum composite panel (ACP) panel system called the ACLAD 2000 Dry Joint System. ACLAD's system removes the requirement for sealant on the panel system and as a result clients can be assured of no major maintenance costs every 10-15 years when the sealant fails.

Everything from expansion, contraction and inter-storey movement is accommodated for on each panel using the ACLAD 2000 System through clever design. All left over materials, such as off cuts, are used in the joint reveal

to hide the stainless steel fixings. The use of the 6mm Alpolic further accommodates the window cleaners who are able to abseil down the facade without damaging the light weight façade.

The creation of the ACLAD 2000 System has done away with the reliance on sealants realizing enormous benefits and savings for the building owners in terms of the future cost of maintenance. Using the ACLAD 2000 System, paneling can be installed to the building structure either left or right, top down or bottom up and, more importantly, allows ACLAD to backfill missing panels once the scaffold ties are removed.

Using the ACLAD 2000 System, the build speed becomes very efficient as the building

structure can now be closed up and sealed sooner using Zinalume air seal sheet. For any average sized project this can be applied at 100-200 m2 per day. Once the building is air-sealed, weather sensitive internal trades can begin to proceed earlier in the project as compared to a sealant based building façade. ACLAD then continues to complete the installation of the panels leaving sufficient time to set the line of the façade and panels to perfect alignment.

ACLAD sustained a strong working relationship with builders - Abigroup - where quality and a long term outcome were at the forefront of their agenda.

ACLAD were provided with the opportunity to design a system for the Mater Mothers Hospital that was 'fit for purpose'. ACLAD have a focus

on quality, care and expertise, to achieve the best results possible from any project and this is exemplified from the results and timely finish of the Mater Mothers Hospital.

So, whilst the doctors and nurses are providing the best of care around the clock inside their new hospital, the work completed by ACLAD means that minimal care is required on the outside for a very long time thereby allowing precious hospital resources to be devoted to health and medical outcomes.

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## ALL THE RIGHT MOVES

When the redevelopment plans of Brisbane's Mater Hospital were announced in 2004, it was no surprise that the extensive skills of Christopher Contracting would be used on the high profile project.

Christopher Contracting were involved in the team working on the plumbing, drainage and civil works of the Mater Hospital. The organisation's established reputation, highly skilled work force and work philosophy ensured their success in the project. Extensive work has been completed on the Mater Mother's Hospital with the design and construction of hydraulic services and storm water drainage.

One of the major challenges faced by Christopher Contracting was the requirement to work in and around a fully functional hospital. Construction work would often need to take place in close proximity to surgery procedures. Special care was required at all times to minimise noise and disruption to hospital operations.

Timing and communication between the construction teams were crucial factors in the

success of the Mater Hospital redevelopment. Christopher Contracting's experience in working on such demanding projects and the innovative and effective methods employed by the company has seen the project's completion on time and on budget.

The constant skill and expertise shown by Christopher Contracting can be attributed to their successful creation of an apprenticeship training program. This program has a strong focus on developing young apprentices into accomplished, skilled professionals and ensuring that their high standard of work continues well into the future.

As well as benefiting the community, the program is creating a future of highly skilled workers who are also able to adhere to the needs and visions of the many organisations working alongside Christopher Contracting.

Christopher Contracting has been working on hospital and shopping centres, as well as many prestigious residential and commercial developments for over 20 years. The organisation boasts the ability to comply with

strict time and budget constraints, without compromising on quality.

Their continued commitment to developing and maintaining staff demonstrates, as well as the significantly low turnover rate within the company, demonstrates Christopher Contracting's high standard of ethics and responsibility.

Christopher Contracting has been involved in many high profile projects throughout Queensland including Royal Brisbane Hospital, the Gold Coast Convention Centre, Suncorp Stadium and the new Gold Coast Stadium.

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## FUNCTIONAL FINISH

With construction of the new Mater Mother's Hospital redevelopment well under way, commercial office furniture specialists, UCI have been busy supplying and installing the workstations, storage and seating for hospital staff and patients.

UCI were presented with some significant challenges during their work on the Mater Hospital Project. This was due to the coordination required between so many different trades working on such a disparate project, both in geography and time. The construction process was over many different buildings and floors and, as much of this was renovation of the original hospital, it was vitally important that their products were ready and available to be installed at extremely short notice.

Such tight timelines and client requirements posed as no issue for UCI, as their experience and professionalism ensured that their impeccable project delivery standards were met for the Mater Hospital Project.

UCI is a leader in providing innovative workspace designs through the creation of products that improve and develop the work environment and the lives of the people that use them.

UCI has been in the Queensland market for over 30 years and during that time have formed international alliances and strong ongoing business relationships with many of Australia's largest companies.

UCI operates on a national level and now boasts eight state showrooms located in all states and territories. They have a passion and commitment to designing office furniture that enriches the lives of the people that use it. In the age of global warming, innovation and sustainability also plays a major role in this.

UCI have developed a highly efficient system of delivering air conditioning direct to the workstation user through a system called Task Air. It has the potential to save on energy costs

and deliver a marked improvement in Indoor Environment Quality. While this system was not specifically used on the Mater Hospital project, the Task Air design means it is able to be incorporated at anytime in the future in this and other UCI projects.

UCI is a leader in commercial office furniture projects, committed to delivering on time and on budget. Their extensive network of showrooms and offices throughout Australia ensures that any design or budget can be accommodated.

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## EVERY DETAIL COUNTS

Redeveloping Australia's largest maternity hospital while keeping it fully functional is no easy feat and requires the expertise of Australia's best contractors to ensure a smooth operation. As one of the most highly regarded and the largest privately owned building and mechanical services contractor in Australia, AE Smith was the obvious choice to take on the Mater Mother's Hospital redevelopment.

The Mater redevelopment project involves the construction of the new Mother's hospital, and a major refurbishment and extension of the

Mater Adult Hospital. AE Smith designed and installed the hydraulics and mechanical systems for use throughout the hospital. This included the piping for transportation of all fluids and gases around the complex.

Innovation and superior customer service has been central to AE Smith's tremendous success. Their commitment to providing sustainable and efficient designs has further strengthened their place as one of Australia's leading mechanical services contractors. As part of the Mater redevelopment, AE Smith

created a roof-water harvesting system and water reuse system for sanitary flushing in the hospital. Their continued efforts to create more efficient designs, has even started inspiring other companies to take action to reduce their carbon output.

AE Smith has been providing quality services to Australia and New Zealand for over 100 years and has been recognised by their customers as "the apex of the mechanical service provider triangle."

AE Smith prides itself on creating close working relationships with clients, and Australian and international partners. The organisation's expert team is second to none in every project regardless of size or complexity. Their attention to detail and personal service has set AE Smith apart from their competitors. And their work has not gone unnoticed.

AE Smith are currently undertaking numerous projects throughout Australia, including the Royal Children's Hospital in Melbourne, the Darwin Convention Centre, the Mackay

Convention Centre and the James Cook University Energy Plant in Townsville. The plethora of landmark projects completed by AE Smith is testament to the superior quality of services that this company has to offer. For more information please call Graham Buderus on 07 3332 0333



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## ALL HANDS ON DECK

Anchor Steelfixing and Concrete are specialists in steelfixing, structural steel, concrete and formwork services, imparting their skills to Queensland for 21 years. From humble beginnings as a family owned and operated company, Anchor Steelfixing have continued to build on their achievements due to the high quality of work and commitment to their clients and staff.

For the Mater Hospital Redevelopment, Anchor provided the steelfixing, concreting, formwork and panels, and completed the new generator room and catheter lab. About 28 of Anchor's 50 staff have been involved in the project since June 2006.

Anchor Steelfixing and Concrete have been presented with several awards including construction safety and commitment in improving safety performance.



Queensland, which include the Salisbury to Kuraby Rail Upgrade and the Royal Brisbane Hospital refurbishment.

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The company employs the same values and work ethic adopted when Anchor first started operations. This has been a major factor in Anchor's tremendous success and has allowed the company to provide a much more personal and approachable service to clients.

Anchor Steelfixing and Concrete have completed many projects throughout



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