



MAIN CONSTRUCTION COMPANY : Kane Constructions
ARCHITECT : Silver Thomas Hanley
PROJECT VALUE : \$120 million

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A NEW BENCHMARK

The \$120M Epworth Richmond Lee Wing Main Works maximises the opportunities presented by technological advancements within the new 13-level building. The redevelopment has more of a luxury hotel feel than a hospital. The project includes a 34-cubicle emergency department, intensive care unit, cardiac care unit, six operating theatres, consulting suites and acute inpatient facilities.

Designed to maximise opportunities in advancements in medical technology, communications and equipment, the \$120 million Epworth Richmond Lee Wing Main Works has set a new standard in health and patient care.

The project has seen the construction of a 13-storey new hospital facility (Lee Wing), comprising of 119 acute inpatient rooms, six operating theatres, 26-bed intensive care unit, 34-cubicle emergency department consulting suites and 5-levels of basement car parking. Through effective program and project management, Kane completed the latest works at the hospital three months ahead of schedule.

“During mid-2015 Kane agreed with the client to accelerate the program. This enabled the client to plan for the commencement of operations in their new facility earlier than previously expected,” says Kane Constructions’ Peter Constantinou.

Kane adopted innovative methodologies around the site’s unitised façade, procurement of stone, service risers and structural build. This innovation addressed budgetary and site constraints including spatial restrictions and the adjoining operational hospital.

“Kane embraced these innovations, not just due to the requirements of the project, but also a desire to innovate and do things as efficiently as possible,” explains Peter.

“Kane elected to prefabricate the main vertical service risers. This involved design and fabrication of a steel frame which was then internally fitted out with mechanical, electrical and hydraulic services.

“In three floor sections (12m), the service risers were then lifted into position and fixed in place. Services were then connected onsite at the junctions between the prefabricated sections.”

The use of prefabricated service risers had significant advantages, including speed of construction, improved OH&S (due to reduced manual handling and working from heights risk), less weather delays (due to less onsite fabrication time) and reduced access requirements.

Working in close proximity to an operating hospital and getting acquainted with the existing hospital to make sure interfaces ran smoothly did pose challenges on the construction.

“The hospital is a sensitive environment and we had to carefully manage our construction. We ensured a close working relationship with our client,” says Peter.

A privately-owned commercial construction company, Kane Constructions works across all sectors of the industry.

Since it was founded in 1973, Kane has successfully completed more than 1,800 projects, has a turnover of \$600 million and

over 300 full time employees. The company operates along Australia’s east coast and overseas from offices in Melbourne, Sydney and Brisbane.

“Our organisation brings the knowledge, experience and financial stability of a large, well-established construction company that has been delivering projects for over 40 years,” explains Peter.

“All company directors are actively involved in the day-to-day operations of the business. A flat management structure sees a Project Director allocated to each project. Teams are based on site from where the contract administration is managed.

“As a company we adopt a team approach – collaboration is key. We ensure our goals are aligned to deliver a successful project outcome for our clients.”

The second contractor in Australia to be accredited after the introduction of the Australian Government Building and Construction OH&S Accreditation Scheme, Kane has long-established, tried, tested and proven management systems, ensuring a safe working environment and first-class quality delivery.

“Our track record and experience in delivering health care projects is second to none. We understand the unique challenges and the best approach to working within operational hospital environments. We have the management systems in place to ensure successful outcomes,” Peter adds.

Kane currently has over 50 projects under construction Australia-wide including Simonds Stadium Stage 4, RACV Cape Schank Resort and Brimbank Community and Civic Centre in Victoria, Moore College and Magnolia Luxury Apartments in Sydney, and Main Beach Apartments Gold Coast and Caloundra Private Hospital in Queensland.

For more information contact Kane Constructions Pty Ltd, 658 Church Street, Richmond VIC 3121, phone 03 8420 1200, fax 03 8420 1201, website www.kane.com.au



When embarking on a project of such calibre as the Epworth Richmond Lee Wing, having an architectural consultant that can provide design solutions to match modern (and future) hospital user needs is critical.

As an international architecture health care design practice with nearly 40 years of experience, Silver Thomas Hanley are more than qualified to deliver these solutions.

The company, as Principal Consultant on the project, provided all of the Architectural services, including Façade design, Functional and Hospital Planning, and Interior Design. Additionally, it ensured the building's external design met the strict criteria of the local council and the Victorian Civil and Administrative Tribunal (VCAT).

“We commenced work on the Epworth Richmond Lee Wing project back in 2010 with the full re-design of their site wide masterplan, which has now morphed into the construction stages of the Erin Street redevelopment – the first being the new Lee Wing building,” explains Silver Thomas Hanley Director Mark Saunders. “We undertook the full health facility design and planning of the Lee Wing building, attending and running all of the executive and user group consultation meetings with Epworth HealthCare, as well as the design of the building both externally and internally.”

“We have had a core group of personnel working on the Lee Wing building over the past three and a half years, with a total number of 15 staff over the course (of the project). These range from myself as Project Director, to Health Planning Architects, Project Architects, Interior Designers and Architectural Technicians,” Mark adds.

The Epworth's façade and the hospital's interior design are distinctive features of the redevelopment. “The façade design was unique and has not been used anywhere else in Australia,” says Mark. “It was developed and documented extensively in-house prior to construction, then worked through with the builders and the façade contractors to achieve the design intent whilst maximising any and all efficiencies available.”

“The interior design was based around the client brief of a hotel-like experience,

which promotes a welcoming experience for patients and their families and improves recovery.”

As expected when delivering such an extensive project, multiple challenges were encountered. This includes the excavation for the 25m deep basement carpark that are situated beneath the new Lee Wing building, all whilst continuing full operations of a busy inner city Private Hospital.

As the building is part of the larger development, planning and allowing for future connections upon completion was also essential. Additionally, creating a functional design that met the needs and requirements of staff and clinical operations within state-of-the-art facilities and matching the client brief of creating a “hotel-like” experience for patients and staff was a further challenge.

From these challenges there have been many positives for both the redevelopment and hospital users now and into the future.

“There are a number of positive outcomes for the project, as well as the future work at Epworth Hospital to complete the remainder of the redevelopment,” Mark adds.

“These include meeting all of the challenges while delivering a new state-of-the-art facility unmatched in the private hospital sector in Australia. The collaborative work by all of the Consultant Design teams, Project Managers, builders and client to achieve the end result (and) creating a 5-star energy rated building”

Silver Thomas Hanley is working on a number of hospital projects around Australia and internationally for private and public sector clients.

This includes the Victorian Comprehensive Cancer Centre, Monash Children's Hospital, Bendigo Hospital, The Royal Adelaide Hospital, Epworth Geelong Hospital and South Western Regional Cancer Centre (Warrnambool).

For more information contact Silver Thomas Hanley, 3 Glenarm Road, Glen Iris VIC 3146, phone 03 9885 2333, fax 03 9885 2455, email melina@sth.com.au, website www.sth.com.au

Below No Fuss Construction Fixings provided the site supplies for Epworth Richmond Lee Wing.



Service and speed is what No Fuss Construction Fixings prides itself on – a family-based business that has been operating throughout Melbourne and Victoria for over 15 years. With three full time drivers, no job is too big or small for this one stop supplier for construction companies. This includes working with Kane Constructions during the Epworth Richmond Lee Wing.

No Fuss Construction Fixings provides an extensive range of products including and not limited to: site shed amenities (such as coffee, sugar and cleaning products), first aid and safety supplies, signage, shade cloths, hand and power tools, fixings and sealants.

“We aim to provide our customers products at competitive prices, delivered the same or next day anywhere in Victoria,” says the company’s Steve Nicola. “We take all requests from our clients, it’s what we are known for and sets us apart from our competitors. Our number one priority is to ensure we maintain customer satisfaction.”

For more information contact No Fuss Construction Fixings, 17 Bronzewing Street, Williams Landing VIC 3027, phone 03 9931 0663, mobile 0404 441 003, email steve@nofussconstruction.com.au

Below Façade Treatment Engineering provided the stone façade system for Epworth Richmond Lee Wing.



Since it was established in 2002, Façade Treatment Engineering has gained a very good reputation for its delivery of the highest quality results. This quality can be seen through its work on the Epworth Richmond Lee Wing, where it supplied the façade curtain wall panels for the hospital’s new building. This included the north, east, south, partial west elevations and courtyard, from the lower ground floor to the consulting suites at level 7.

“Although the building looks like a square hospital, the level of skill required to manufacture such a delicate stone façade system is extremely high and rarely seen in Melbourne,” explains Façade Treatment Engineering’s Wiliam Liew. The curtain wall panels comprises aluminium frames, steel frames, glass, aluminium composite panels, louvres and stone granite. The louvres and stone granite was supplied directly by Kane to our factory for manufacturing.

“We designed a new customised unitised curtain wall system to accommodate the weight of stones of 1.5 tonnes, which is six times heavier than an ordinary curtain wall, and anchor point fixings system for the stone, together with special steel system to create the multiple projection required by the façade. This panel has special double cavities for high waterproofing performance.”

The weight of the panels posed a challenge for the company, particularly around production, handling, packing and installing, as did the multiple projection on the façade of 30mm to 500mm.

The company also had to make sure the incorporation of the stone granite panel into the specialised unitised system maintained a high consistency in the stone finish, size and gap, and that it all aligned and matched. However the company’s Project Manager, 10 draughtsmen and 40 skilled labourers have ensured the resulting façade is a work of art.

Façade Treatment Engineering is working on a number of projects across the globe, including several projects in Malaysia, such as 3 Towers Kuala Lumpur, IOI City Shopping Mall and Mercedes Benz HQ Malaysia Phase 4.

For more information contact Façade Treatment Engineering Sdn Bhd, Malaysian Office, Lot 755, Jalan Subang 3, Sg. Penaga Industrial Park, Subang Jaya 47610 Malaysia, phone +60 3 5633 3999, fax +60 3 5633 5999

Australian Office, 79 Lexton Road, Box Hill, VIC 3129 Australia, phone 03 9899 4328, email enquiry@facadetreatment.com.my, website www.facadetreatment.com.my



Below Johnstaff Projects were the project managers for all aspects of the Epworth Richmond Redevelopment.

Below LCI - LEHR Consultants International provided the building services engineering for Epworth Richmond Lee Wing.



Johnstaff Projects (VIC) Pty Ltd is proud of the many and varied community infrastructure projects its staff have helped successfully bring to completion. Delivering high-quality, successful project outcomes, Johnstaff continues to actively work on a variety of complex and challenging developments in the health, aged care, research, education, commercial, justice and retail sectors.

This includes the company's appointment as Epworth Health Care's external Project Manager for the Epworth Richmond Redevelopment. Johnstaff was engaged to undertake project management on all aspects of the redevelopment, including management of design consultants, building contractor and ongoing liaison and reporting with the client. Johnstaff was also superintendent of the building contract.

"Johnstaff has been involved in all facets of the management of the project, from site master planning, through all phases of design, tendering and appointment of a building contractor and construction administration," Johnstaff Project Director David Russo explains.

"Johnstaff also developed the procurement strategy for the project, which included an Early Works to demolish existing buildings, divert services and complete the site retention and excavation."

"This allowed the detailed design of the main works to occur in parallel and also de-risked the site with respect to in-ground latent conditions. The Main Works was separately tendered to the market. This procurement approach delivered significant programme advantages and minimised the cost risk exposure to Epworth Health Care."

The project was delivered under budget and ahead of time – a result of a collaborative project environment between all project stakeholders.

"Johnstaff and the rest of the project team are looking forward to commencing and successfully delivering the remaining stages of the Epworth Hospital Richmond Redevelopment," David adds. "This will finalise the Master Planned upgrade and expansion of the hospital to provide more services, reach more patients and exceed patient expectations of private healthcare."



For more information contact Johnstaff Projects (VIC) Pty Ltd, Level 8, 21 Victoria Street, Melbourne VIC 3000, phone 03 9663 4044, fax 03 9639 4118, email jpl@johnstaff.com.au, website www.johnstaff.com.au

The evolution of a firm that began in the United States in 1969, LCI – LEHR Consultants International (Australia) was started in the country in 2007 by two local engineers. That firm has now grown into a company employing more than 80 staff in Victoria and Queensland – with another office recently opening in Sydney.

Specialising in Building Services Engineering, the company aims to challenge the standard approach to all aspects of building services including mechanical, electrical, hydraulics, fire protection, and fire engineering. LCI is also committed to providing expertise, engagement and high levels of service to utilising the latest engineering and Revit software to provide optimised solutions. It was this expertise and commitment that saw LCI engaged to carry out its services on the Epworth Richmond Lee Wing.

"We carried out the design, documentation and contract administration for all services," explains LCI's Ciaran Mooney. "We provided a 21st century services solution in the hospital using existing floor-to-floor heights. LCI also used its in-house tools to minimise plant space."

In addition to Ciaran, seven staff worked on the project, namely Ross Doolan, Paul Mulquaney, Frank Lombardi, Tim

Baxter, Tony Butler, Mark Pearson and Gareth Day. LCI is a truly international practice that specialises in large scale health projects. This is demonstrated by its recent involvement in the \$1 billion Victorian Comprehensive Cancer Centre in Melbourne and the \$2 billion New Royal Adelaide Hospital.

LCI's health project specialisation is further evidenced by the large number of developments the company is currently working on within the sector. This includes the Epworth Hospital Geelong, St John of God Geelong ICU, Epworth Freemasons Hospital and Epworth Eastern Hospital.

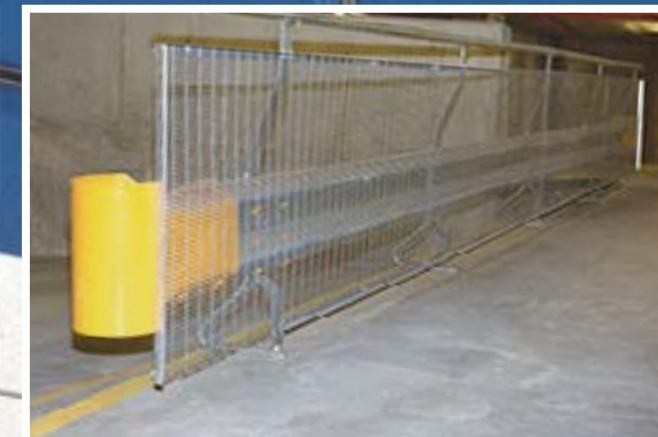
Additionally, LCI is working on the Epworth South Western Radiotherapy Centre in Warrnambool, Epworth Camberwell Consultancy Suites, Holmesglen Healthscope Hospital, Frankston Private, Bethlehem Hospital and various projects for the Cabrini Hospital in Malvern.

For more information contact LCI – LEHR Consultants International (Australia) Pty Ltd, Level 1, 80-88 Greville Street, Prahan VIC 3181, phone 03 9230 5600, fax 03 9533 2199, email info@lehcint.com.au, website www.lehr.com.au



Epworth Richmond Lee Wing, Victoria

Below Ingal Civil Products fitted out the Epworth Richmond Lee Wing's new care park facility.



As a leading manufacturer and supplier of safety barrier systems, Ingal Civil Products prides itself on having made a significant contribution to the safety of Australia's roads. The company, which is a market leader in safety barrier systems, supplied the crash barrier for the Epworth Richmond's new car park as part of the hospital's redevelopment.

Ingal Civil Products provided its standard Spring Steel Buffa car park barrier system. This system includes an integrated anti-climb mesh panel and handrail (required under the Building Code of Australia). The system can also be customised if required.

"The supplied Ingal Spring Steel Buffa car park barrier system is Australian made and manufactured and galvanised at our Minto, New South Wales facility," Ingal Civil's Product Manager Peter Pavey explains. "The car park barrier system is fully compliant with AS/NZS 1170.1, AS/NZS 2890.1 and Building Code of Australia. The installation was accomplished with minimum disruption to the other construction activities on site during the redevelopment."

The works had to take into consideration the available space in the car park for the barrier system installation and was designed accordingly.

"Challenges included designing the installation to maximise the available space for vehicles to navigate the car park," Peter adds. "This was solved in some locations by careful consideration of the layout of the car park, from the parking spaces to the interconnecting ramps."

Since the installation of the Spring Steel Buffa car park barrier system at the Epworth Richmond Lee Wing, the company has developed a new range of high-strength, semi-rigid car park barriers.

"The new ZEE Park range augments our Spring Buffa system and uses the same anti-climb mesh and handrail. We often work with architects and designers to tailor car park barriers to suit their projects," says Peter.

Ingal Civil Products is currently working on a variety of projects, including hospital developments, freight and logistics facilities, CBD multi-use developments, railway station upgrades and cold-storage facilities.

For more information contact Ingal Civil Products, 35-37 Lakeside Drive, Broadmeadows VIC 3047, phone 03 9358 4100, fax 03 9358 4110, email sales@ingalcivil.com.au, website www.ingalcivil.com.au

Below Hume International designed, manufactured and installed a range of window and wall coverings on the hospital.

Below Cellular Asset Management provided the In-Building Coverage solution for Epworth Richmond Lee Wing.



Hume Internationale’s customised and efficient solutions on the Epworth Richmond Lee Wing have revolutionised the hospital’s interior fitout, bringing its environment a new look and feel. The company supplied and installed a range of customised wall coverings and glass films for use in the hospital’s surgical and non-surgical environments.

Working in conjunction with project architects Silver Thomas Hanley, Hume Internationale developed efficiently-priced custom wall coverings for use in the surgical theatres, including specialty digital prints and customised glass.

“The glass and print coverings in the surgical areas had to pass the Epworth Geelong Betadine test, where you throw Betadine (antiseptic liquid) at the products, leave for a week and then scrub off,” explains Hume Internationale Sales and Marketing Director Mitch Walters.

“We worked to design a product that was tough and aesthetically pleasing. Together with Silver Thomas Hanley, we developed a gum leaf design for the wall covering and a protective outer layer made by Du Pont that is easy to clean and Betadine proof.”

Hume Internationale also supplied the hospital’s window film treatments including safety decals, high level frost treatments and a myriad of other window treatments. “For the digital wall coverings in non-surgical areas, we again worked closely with Silver Thomas Hanley and Epworth Health Care, and then designed, manufactured and installed them,” said Mitch.

Covering walls, windows, furniture and floors across Australia and New Zealand, Hume Internationale was founded 45 years ago and engages the services of over 30 personnel across the two countries. “Our company has evolved over the years to present a full interior fitout product suite from walls to floors and specialise in customised solutions,” Mitch adds. “We will go further than anyone else to find a solution to a problem.”

The company has recently been working on the Epworth Geelong, Emirates and Air New Zealand First Class lounge fitouts, Royal North Shore Hospital, Burnie’s North West Regional Cancer Centre, Forbes and Parkes Hospitals and many more.

For more information contact Hume Internationale Pty Ltd, 2/5 Ovata Drive, Tullamarine VIC 3043, phone 03 9335 6711, fax 03 9335 6788, website www.humeinternationale.com

A leading provider of wireless solutions to some of the world’s most exciting and architecturally-challenging buildings, Cellular Asset Management (CAM), works with mobile operators to ensure coverage is available wherever and whenever it is needed.

CAM was engaged to design and construct a carrier grade In-Building Coverage (IBC) solution for the new hospital wing. The IBC solution needed to be compatible with all mobile operator frequencies and technologies (3G and 4G voice and data services).

“Works involved the initial Radio Frequency (RF) design of the solution in conjunction with all carriers to ensure that their technical requirements were met before they agreed to connect their equipment to the system,” explains Cellular Asset Management’s (CAM) Jim Hazelden.

“CAM then completed the full installation, testing and commissioning of the system, which had to be co-ordinated with the builder (Kane Constructions) at an advanced stage of building construction.”

Working on the project was Jim, Construction Supervisor Lucas McDonald and RF Design Engineer Ravi Bobbadi. CAM engaged Lanec Services Pty Ltd as the construction sub-constructor.

“All products and methods used were in compliance with Multi Carrier Forum (MCF) guidelines for Mobile Operator connectivity,” adds Jim. “The system was designed with expansion of the hospital pods in mind for both coverage and capacity – the system needs to be easily expanded as these areas are built. This included provision of sufficient main equipment space to facilitate this. Works were completed on time and on budget including a temporary signal repeater solution for the underground car parks for emergency calls during construction.”

CAM is engaged on approximately 100 projects, providing new and upgrade solutions for indoor mobile coverage. This includes the Epworth Healthcare Geelong Hospital, which is nearing completion.

“CAM is an approved supplier of IBC services to the mobile industry and in addition, provides turnkey solutions to developers, builders and landlords across all indoor environments such as commercial buildings, stadia, hospitals, shopping centres and transport links, to name but a few,” says Jim.

For more information contact Cellular Asset Management Pty Ltd, Unit 17, Lot 4, 390 Eastern Valley Way, Roseville NSW 2069, phone 02 9417 3385, email australia@cellularasset.com, website www.cellularasset.com