

ORANGE BASE HOSPITAL

MAIN CONSTRUCTION COMPANY : Hansen Yuncken
DEVELOPER / CLIENT : Pinnacle Health Care / Capital Insight
PROJECT END VALUE : \$190 Million
COMPLETION : February 2011
ARCHITECTS : Silver Thomas Hanley Design / Design Inc
ENGINEER STRUCTURAL : Connell Wagner Pty Ltd / Aurecon
SURVEYOR : Usher & Co



B & L MORRISON

THE EARTHMOVERS YOU CAN RELY ON

Established 12 years ago in NSW, B & L Morrison Earthmoving are an Australian company that specialises in the provision of residential and commercial building site earthworks.

With a professional and experienced team of 16 operators, as well as an extensive fleet of earthmoving equipment, B & L Morrison Earthmoving is able to deliver a range of innovative earthwork solutions to a variety of clients.

With an extensive project portfolio, including their work on the Tran grid upgrade in Orange, as well as various earthworks for a number of regional schools within NSW, B & L Morrison Earthmoving were also recently involved on the significant Orange Base Hospital redevelopment.

Initiated by the NSW Government as a social infrastructure Public-Private Partnership (PPP) hospital, the project involved the design, construction, finance and maintenance of a new Greenfield hospital, as well as associated buildings on the existing Bloomfield Health Campus at Orange in regional NSW.

Representing the largest investment in health infrastructure outside the metropolitan area, the \$194 million redevelopment of the Orange Base Hospital will also incorporate a \$34 million construction of new tertiary mental health facilities, as well as new cancer radiation therapy facilities and heritage refurbishments to the other existing mental health and administration buildings.

The new facility is a Level 5 Hospital, with integrated Cancer Care and Tertiary Mental health services. Furthermore, the main hospital building consists of a 200 bed general hospital, with four operating theatres, 60 specialised treatment areas, two radiotherapy bunkers, and associated primary and community health areas.

Bruce Morrison, Director of B & L Morrison Earthmoving, said that throughout their involvement, his team had provided all of the detail earthworks across the Orange Base Hospital site.

“Whilst working on the Orange Base Hospital redevelopment, we used our fleet of cutting-edge equipment,” Mr Morrison said.

“This included our new Komatsu PC0.50, the Komatsu 97R-5, the CAT 272c bobcat and the Cat, five tonne roller, all of which were able to handle the large scope of the redevelopment. “Furthermore, as a result of our team of highly-skilled earthmoving operators, we were able to ensure the delivery all of the particular earthworks required for the Orange Base Hospital redevelopment in both a time and cost effective manner,” he said.

B & L Morrison Earthmoving’s wealth of industry expertise also meant they were able to avoid any potential disruption or delays to the Hospital’s construction whilst fulfilling their project responsibilities.

In addition, consistent liaising with other onsite contractors and the major client, Hansen Yuncken, paved the way for a well-coordinated and managed project operation. “As we are able to complete a range of varied earthworks, regardless of the size or demands of the specific project, we were also able to smoothly deliver optimum earthwork results to the



Orange Base Hospital redevelopment,” Mr Morrison said.

“This not only ensured complete client satisfaction, but also ensured an outstanding overall project result for the community and the NSW health industry,” he said.

With a leading range of equipment, skilled and professional operators, as well as a well-known reputation for delivering and providing quality earthworks; it is without a doubt B & L Morrison Earthmoving will continue to remain at the forefront of the Australian earthmoving industry.

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BUSH FIRE PROTECTION ADVICE GIVES THE ALL CLEAR FOR ORANGE BASE HOSPITAL

Eco Logical Australia (ELA) is one of Australia's leading and most dynamic bushfire and environmental consultancies. ELA merged with Bushfire and Environmental Services (BES) in 2008 to form the largest specialist bushfire consultancy in Australia. ELA services a variety of clients, in both the public and private sectors,

with innovative and effective solutions, using cutting-edge research and technology.

With an impressive client portfolio, such as the Defence Department, CSIRO, numerous NSW, ACT and Qld Government agencies, legal firms and many large corporations and building contractors, ELA provides an extensive range of services and specialist advice.

Given their team's industry expertise and experience, ELA were able to provide important solutions for the significant Orange Base Hospital redevelopment project.

This \$214 million redevelopment, which represents one of the largest investments in health infrastructure outside the metropolitan area, will include a new General Hospital, two new Mental Health facilities and the upgrade of four existing buildings for the mixed use of mental health and hospital administration.

In NSW, bushfire protection measures are required for any development that occurs on bush fire prone land, with development consent only granted if protection measures are adequately addressed.

Hospitals are categorised as Special Fire Protection Purpose developments and as such have potentially more onerous constraints and a higher level of bushfire protection.

Rod Rose, Director of Bushfire in ELA was responsible for finding cost and design effective solutions for the hospital under the NSW bushfire protection laws.

"After identifying a portion of the site was mapped as bush fire prone land I guided Hansen Yuncken throughout the design process with constraints, opportunities and options" Mr Rose said.

"Initially I reviewed the accuracy of the bush fire prone land map, which had been prepared by Orange City Council and endorsed by the Commissioner of NSW Rural Fire Service, to ensure all existing and potential bushfire risks were captured and appropriately classified.

"Design of a hospital located on bush fire prone land, such as the Orange Base Hospital, requires among other things careful attention to vehicular and pedestrian access to ensure the potential for both on-site and off-site evacuation is feasible with an appropriate level of safety" he said.

As part of a thorough risk assessment, Mr Rose considered all existing and proposed vegetation on and adjoining the site along with the slope of those lands. The data collected was used to guide the development design to a compliant Asset Protection Zone and building construction standard.

Mr Rose said "A substantial saving in construction costs and the avoidance of complex design alterations was achieved through a technical review of the tree density and vegetation patterns of the site. This included demonstrating some treed areas were lower risk due to the managed gardens and lawns underneath and the inability of a bushfire to spread through the tree canopies alone."

The reassuring conclusion of the ELA assessment and advice to Hansen Yuncken enabled the development to proceed with minimal bushfire protection complications, yet achieve a protection level that exceeded best practice in NSW.

With their innovative methods and approach, it is no surprise that ELA's reputation has continued to grow within the industry, earning the respect of both industry peers and their extensive client list.

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AN OUTSTANDING JOINT VENTURE AT THE FOREFRONT OF THE ORANGE BASE HOSPITAL DEVELOPMENT

Design Inc Sydney, in a joint venture with Silver Thomas Hanley of Melbourne, were together appointed to design the Orange Base Hospital in Orange, New South Wales.

This \$214 million significant redevelopment, which represents the biggest investment in health infrastructure outside the Sydney metropolitan area, includes a new General Hospital, two new mental health facilities and the upgrade of four existing buildings that provide a mixed use of mental health facilities and hospital administration.

With more than 60 years of experience and expertise in architecture, interior and urban design throughout Australia, Design Inc has been involved since the initial collaboration and development of the Master Plan visions of the Orange Base Hospital.

In addition, they have been responsible for the unique design, procurement and delivery of high-quality, sustainable architecture and high-standard infrastructure solutions that have been required for the Hospital.

Incorporating a range of successfully completed health care facility projects, Silver Thomas Hanley is continually recognised within the building and construction industry for their expertise in the areas of acute health, special planning, feasibility studies, architecture and interior design.

Endeavouring to provide original and operationally sustainable solutions for the Orange Base Hospital redevelopment, Silver Thomas Hanley's in-house team of professionals and their state-of-the-art design computer systems, have been working to deliver project outstanding results for the client, Hansen Yuncken.

During their involvement, Design Inc have been mainly responsible for the Main Hospital and Mental Health buildings' base architecture, as well as the interior architecture and health planning of the Mental Health Buildings. Meanwhile, the scope of Silver Thomas Hanley's involvement has incorporated undertaking work on the interior architecture and health planning of the Main Hospital building.

The material and techniques applied to the Orange Base Hospital redevelopment by Design Inc and Silver Thomas Hanley were used both effectively and originally. In particular, perhaps the most important external material selection decision, made and supported by Spotless, was the use of aluminium sandwiched panels

for all of the external eave soffits. Not only was this material selection cost effective and unique, however, it also provided a cutting-edge design element to the Orange Base Hospital.

In addition to the joint venture's vast industry experience and knowledge, great care has been taken at all times to retain and respect the site's heritage master planning, as well as ensuring the preservation and enhancement of all of the redevelopments' public amenities.

Furthermore, resulting from the fact that Silver Thomas Hanley and Design Inc are continually recognised within the industry for their on-going Environmental Sustainable Design principles they apply to all of their projects, both companies are taking measures to ensure such design principles are also applied to the Orange Base Hospital.

The success of the development and design of the Orange Base Hospital has resulted in this joint venture being chosen as part of a consortium that will also be responsible for designing and planning the new Royal Adelaide Hospital PPP and a third project under consideration in the Victorian Comprehensive Cancer Centre PPP. Such an appointment is further testament to the abilities and expertise of both Design Inc and Silver Thomas Hanley.

In fact, given their prolific project portfolios and clientele, it is without a doubt that Silver Thomas Hanley and Design Inc will remain at the forefront of the design and architectural industry, continuing to grow single ideas into integrated, sustainable solutions with multiple benefits.

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WESTRUSS SETS THE BENCHMARK

Established in 1980, Westruss is the trusted and reputable manufacturer of pre-fabricated timber frames and trusses for residential, business and construction markets throughout NSW.

Able to cater for a large variety of clients, be it a large corporate building company to a 'one-off' building owner, Westruss can provide unique, cost-effective and quality timber frames and trusses. In order to do this to the highest possible standard, they purchase raw materials that are partly or wholly manufactured, then assemble a custom-designed and produced product that is specifically suited to the client.

Given their ability to quote, design, produce and deliver product to their clients within a short turnaround period, Westruss were also recently involved on the Orange Base Hospital Development in NSW.

This \$214 million development represents the largest investment in health infrastructure outside the NSW metropolitan area and will

incorporate a new General Hospital, two new mental health facilities and the upgrade of four existing buildings, for a mixed use of mental health facilities and hospital administration.

In addition, the Project will include the \$160 million redevelopment of the Orange Base Hospital, a \$34 million construction of new tertiary mental health facilities, an \$18.8 million construction of new cancer radiation therapy facilities and an investment of \$1.6 million into the oral health facilities.

Commencing involvement in 2009, a large team of 67 Westruss employees were responsible for providing all of the timber frames and trusses required for the buildings included in the Orange Base Hospital development.

Managing Director of Westruss, Jim Cheney, said that his team had to ensure the finished product and results met the high standards and particular specifications of the client.

"Throughout our involvement on the Orange Base Hospital redevelopment, we needed to ensure our custom-made trusses and timber frame products met the demands of the major contractor, Hansen Yuncken," Mr Cheney said. "These tasks proved to be easy though as we only use the highest standard of timber and industry knowledge to create outstanding truss and timber frame products.

"In addition, one of Westruss' strengths is our ability to adapt and respond quickly to particular project requirements, regardless of what they may be, so we were able to deliver outstanding product results for this redevelopment," he said.

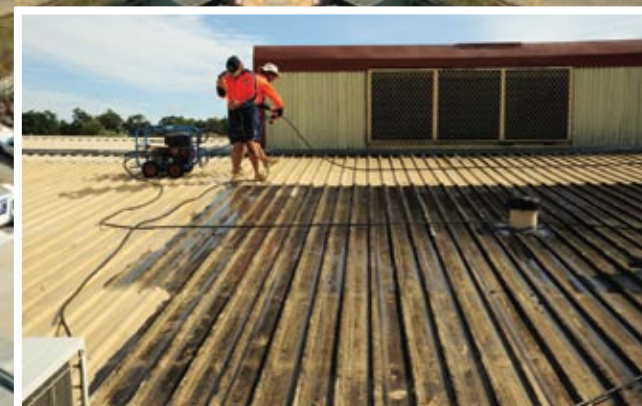
Furthermore, given Westruss' wealth of industry expertise and knowledge, Mr Cheney said his team faced no major obstacles or challenges while working on the Orange Base Hospital.

"Whilst working onsite at the Orange Base Hospital, we were able to deliver quality product results, within the tight budget and time deadlines," Mr Cheney said. "Given the fact we have a very experienced staff base that have been with Westruss since our initial inception, also allowed us to complete this project of such a significant size, with confidence and professionalism," he said.

Going on the overall success of the Orange Base Hospital redevelopment and the positive impact it will have on the NSW health industry, as well as the continuous professionalism and expertise of the Westruss team, it is without a doubt that from design to delivery, Westruss sets the industry benchmark for quality and service.



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ONDINE HOLDINGS – THE PEOPLE YOU CALL WHEN YOU NEED YOUR ROOF FIXED

Main Image : Tip Top Bakery, QLD - Aerial View
Inset images, top to bottom : Orange Base Hospital, NSW - Heritage roof renovations, Tip Top Bakery, QLD - Aerial view, Tip Top Bakery - Roof restoration.

ONDINE HOLDINGS PTY LTD
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contact: Tom Partridge, Director
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Ondine Holdings are an Australian wide company based in Orange NSW that specialise in the complete restoration and refurbishment of all roof types domestic, commercial and industrial.

Ondine utilise a wide range of market leading roof coating products manufactured by Nutech Paint Pty Ltd, such as NXT Cool Zone® and Flexishield™, to successfully restore and refurbish a large number of varying types of domestic roofs.

Some of the commercial and industrial projects completed using Nutech products include regional NSW State Water - Dam Sites, Charles Sturt University, Heritage Listed - Orange Base Hospital and various buildings at Tip Top Bakery sites in Brisbane, Newcastle, Adelaide and Canberra ACT.

Tom Partridge the Director of Ondine Holdings said that...“whilst they were working on the Brisbane Tip Top Bakery roof refurbishment

project his team of highly-skilled tradesman were responsible for the complete restoration of the bakery roof...the bakery roofs are affected by flour dust, yeast cultures, etc, which settle on the roofs and turn into black mould...and previously in the past the roofs were either high pressure cleaned or completely replaced...given the enormous scope of the roofing project, which incorporates an area of over 6,000 square metres it was decided to restore the roof instead of replacing the roof to avoid cost blow outs and shut down time and NXT Cool Zone® was chosen for the project.”

NXT Cool Zone® Enhanced with Surface Cleaning Nano Technology is a revolutionary heat reflective, low VOC, high gloss acrylic roof coating that utilizes Thermal Protection Technology to reduce the heat of your roof. Colour choice no longer has to be sacrificed as it is available in a wide range of earthly colours and is Drinking Water safe. Ezy Flash was supplied by ACP – Australasian Construction Products Pty Ltd.

He also said...“one of our major challenges was to repair hundreds of leaks on the roof using Ezy Flash, which were discovered as we high pressure cleaned the roof...also because the Tip Top Bakery operates 24 hours a day seven days a week we needed to ensure the restoration work of the roof did not affect the daily operations of the bakery...despite the challenges our experienced team of tradesman were able to successfully restore the roof in a cost effective manner and within the allocated time frame and have therefore been appointed to repaint the flour silos and other buildings on the same site with NXT Cool Zone® during the next redevelopment stage.”

As part of their involvement on the Orange Base Hospital redevelopment, Ondine Holdings carried out a range of extensive heritage renovations and repairs on the hospital's terracotta roofs.

Given the fact a number of the hospital buildings have been heritage listed, completely removing the badly damaged roof was not an option

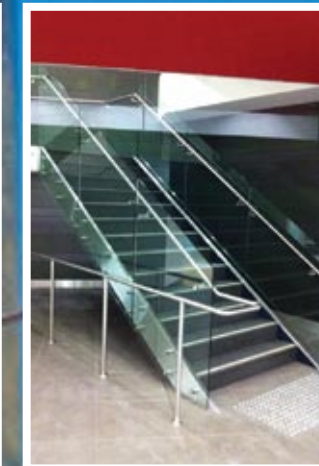
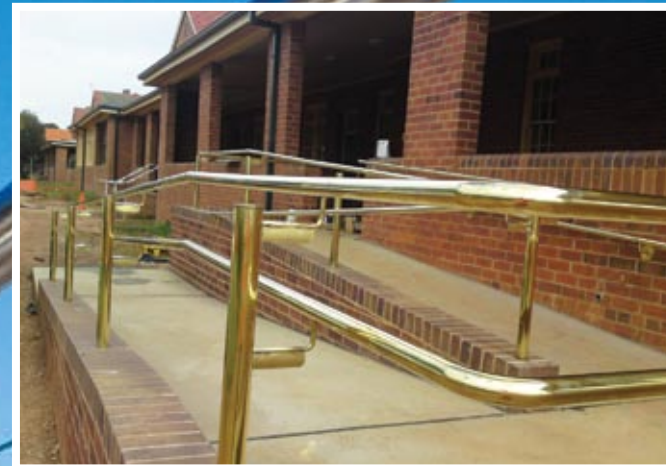
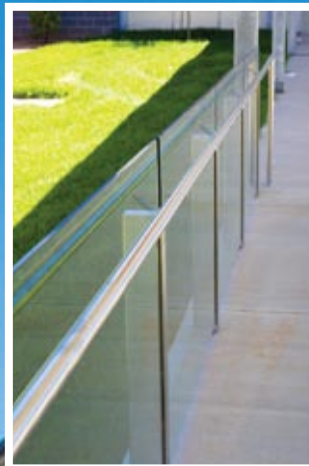
for the client, Hansen Yuncken. As a result, Ondine Holdings worked on the roofs, across the various stages of the project to ensure their preservation was upheld.

“The difficult factor about this job was that a great deal of safety equipment and skill within this field was required to efficiently maneuver the steep, brittle and slippery surfaces of the heritage-style roofs,” Mr. Partridge said.

“However, once again, our highly skilled tradesman were able to successfully deliver optimum results and complete client satisfaction,” he said.

With a number of significant projects due to be started and their strong commitment to further expansion within the commercial and industrial roof restoration markets, it is without a doubt that Ondine Holdings will continue to deliver outstanding restoration results to the building and construction industry.

SHARVAIN BALUSTRADING – THE EXPERTS YOU CAN TRUST



Incorporating more than 50 years of industry experience, Sharvain Balustrading specialise in the fabrication and installation of glass, cables and stainless steel balustrade, as well as the design and installation of structural steel, frameless shower screens and architectural skylights.

Taking pride in being able to provide the same levels of attention to service and project results, for a broad variety of clients, regardless of the particular project's size, Sharvain Balustrading are also able to carry out a range of welding services, such as aluminium, tig, mig and arc.

Having recently joined forces with another large international Structural Steel company, Sharvain Balustrading works only with the highest grade materials available on the market and are able to manage a project from its' initial conception right through to the final stages.

Given their prolific reputation within the Australian Balustrading industry, Sharvain Balustrading were also recently involved on the significant Orange Base Hospital redevelopment in NSW.

This \$214 million redevelopment, which represents one of the largest investments in health infrastructure outside the metropolitan area, will include a new General Hospital, two new Mental Health facilities and the upgrade of four existing buildings for the mixed use of mental health and hospital administration.

Commencing their involvement in August, 2009, the professional team from Sharvain Balustrading was responsible for the design and delivery of all of the required brass, stainless steel and glass handrails, as well as the fabrication and installation of the structural steel undercover walkway.

Grant Harford, Managing Director of Sharvain Balustrading, said that whilst working on the Orange Base Hospital redevelopment, they employed the use of a new Jail Safe Glass product.

"In order to suit the particular requirements of the glass handrails required at the hospital, we used this cutting-edge Jail Safe Glass," Mr Harford said. "This glass is constructed using a combination of toughened safety glass, heat strengthened glass and a PVB interlayer.

"As of this unique design, this type of glass not only provides initial strength upon any impact it may experience, but it also offers continued strength and resistance even if after one or more of the glass panels were to break," he said.

Given their wealth of industry expertise and attention to detail, it was no surprise that Sharvain Balustrading were able to successfully complete their responsibilities at the Hospital without having to overcome any particular challenges or obstacles.

"As a result of our continuous close working and professional relationship with the main developer, Hansen Yuncken, whose team was headed by Michael Martin, our time working on the Orange Base Hospital ran very smoothly," Mr Harford said. "As a consequence, we were able to successfully deliver outstanding results to the client, within the required tight timeframe and budget requirements.

"Furthermore, we found Hansen Yuncken to be one of the most professional and driven companies to work alongside and we at Sharvain Balustrading are looking forward to hopefully working with

them again in the near future," he said. In addition to the successful completion of their balustrade and glass installation services at the Orange Base Hospital redevelopment, Mr Harford said Sharvain Balustrading were also looking forward to commencing their next project with Broad Construction in Manly.

In fact, it could be said that Sharvain Balustrading will definitely be the name to remember to provide the installation and fabrication of all your glass, cables and stainless steel balustrade requirements on your next project.

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PROVIDING ONLINE SOLUTIONS FOR ORANGE BASE HOSPITAL

For over ten years, WebFM have been developing and providing unique online products for a range of clients in the building and construction industry.

Specialising in Operation and Maintenance Manuals, WebFM also developed OMTrak, an award-winning solution for infrastructure projects that creates electronic Operation and Maintenance manuals and has been used on approximately \$30 billion worth of projects.

With a number of prolific clients including Leighton, Bovis Lend Lease, Westfield and Hansen Yuncken, already utilising the OMTrak manual, WebFM were also chosen to provide Operation and Maintenance manuals for the Orange Base Hospital.

This \$214 million capital investment by the NSW Government will include a new General Hospital, two new Mental Health facilities, as well as the upgrade and re-configuration of four existing buildings. The joint will also incorporate associated site works, including new car parking, landscaping and covered links.

During their involvement, WebFM were responsible for tailoring and developing the Project's online Operations and Maintenance manuals.

Brook Baker, National Development Manager, said the OMTrak system provided contractors and client's visibility of the manuals well in advance and as a result, were both cost and time efficient.

"Using OMTrak ensures a reduction of any costs associated with handover delays or any project management inefficiencies," Mr Baker said.

"In addition, OMTrak is online and only requires only an Internet connection to use. It also reduces the costs associated with printing for multiple hard copies and long-term record storage," he said.

Since developing the specialised OMTrak software tailored to suit the requirements of the Orange Base Hospital Project, WebFM have ensured their client, Hansen Yuncken, has been able to monitor each sub-contractor progress online, as well as complete the required manuals well in advance of handover.

"Using OMTrak whilst working on the Orange Base Hospital Project has saved time and money," Mr Baker said.

"As a result of this unique system, we and Hansen Yuncken have been able to manage the Hospital project without having to deal with any obstacles that may have delayed the various stages of the joint development," he said.

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A BREATH OF FRESH AIR FOR ORANGE BASE HOSPITAL

ERBAS AND ASSOCIATES is a consulting engineering company for the building and construction industry, able to serve a wide range of clients and successfully deliver a variety of projects.

Established in 1997, the skilled and enthusiastic staff at **ERBAS – Engineers for Building Services** offers a wealth of knowledge in delivering mechanical, electrical, hydraulic, fire, ESD, Greenstar, NABERS and lift services.

Having worked on over 2,000 prolific projects throughout NSW, including the hospitals at Parramatta and Newcastle, Cessnock Correctional Centre, a number of science laboratories and major hotels, Many Educational and Government Projects, **ERBAS – Engineers for Building Services** were the perfect choice to provide the design review and check of air conditioning and ventilation services for the Orange Base Hospital development.

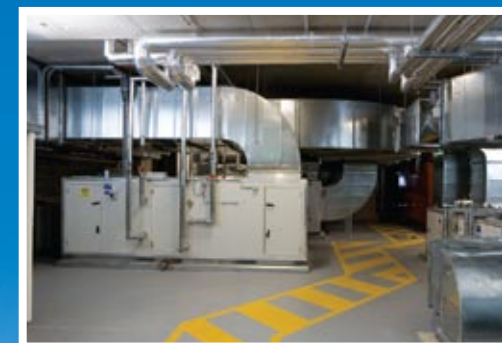
This \$14 Million Project in Orange, NSW, will incorporate state-of-the-art hospital and medical facilities, as well as the refurbishment of the existing Bloomfield Hospital, which is located next to Orange Base Hospital.

During their involvement, the highly skilled **ERBAS – Engineers for Building Services** team has been responsible for reviewing and checking the design and documentation of customised air-conditioning, ventilation and related mechanical services as well as the installation for the Orange Base Hospital.

ERBAS – Engineers for Building Services specialise in all aspects of building services including mechanical services design and documentation and have been able to deliver both cutting-edge and cost-effective solutions.

Furthermore, **ERBAS – Engineers for Building Services'** reputation for their work in ecologically sustainable design (ESD), allows them to deliver energy-saving solutions across all aspects of the hospital building.

As the air conditioning and ventilation of a hospital is of utmost important to patients and staff, it was no surprise the professional **ERBAS – Engineers for Building Services** team were chosen to ensure that the delivery of such services not only met the requirements of the Orange Base Hospital, but also met the high standards of the client.



ERBAS AND ASSOCIATES

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TRIPLE 'M' MECHANICAL & TRIPLE 'M' FIRE *'the team you can trust'*

Specialising in all aspects of HVAC and Fire Services across commercial, health and industrial buildings, Triple 'M' Group have the size, experience and resources to deliver specialist services to their clients.

Since 1994, Triple 'M' Group have been involved in a number of prestigious projects, including the Sydney International Aquatic Centre, and given their experienced team and industry expertise, were chosen to partner Hansen Yuncken on the Orange Base Hospital Project in NSW.

As part of their involvement, Triple 'M' Group was responsible for the design and installation of chilled and heating water central plant, AHU's, and terminal thermal powered VAV diffusers.

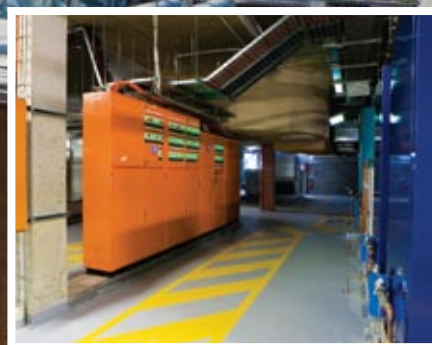
In addition, they installed state-of-the-art VRV air-conditioning systems in four of the buildings.

With some of the largest in-house ductwork manufacturing and pipe work fabrication facilities of any mechanical contractor, as well as being able to offer integrated Mechanical and Fire solutions, without doubt Triple 'M' Group will continue to remain at the forefront of the industry.

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JUST WHAT THE DOCTOR ORDERED

CDE Structures, (CDES) specialises in Building Information Modeling and Structural Steel Detailing, offering a broad base of design, project management, engineering and drafting services to the building and construction industry.

CDES and a team of experienced and skilled staff, are able to manage a variety projects across Australia, from the initial idea though to the final commissioning.

Given their industry experience and commitment to delivering project solutions, CDES was involved on the Orange Base Hospital redevelopment, which, when complete will incorporate the construction of a new two, part three-storey, purpose-built general hospital building.

This project will also encompass the construction of an acute mental health building, demolition and refurbishment of existing buildings, as well as the provision of landscaped areas.

Commencing involvement in 2008, CDES was responsible for the modeling and detailing of all the structural steel required for the hospital. Phillip Bird, Managing Director of CDES, said they used Tekla Structures software, which is a high-end, 3D Building Information Modeling package that automates the production of shop detail drawings.

"We worked in conjunction with architects and engineers to develop a fully detailed structural steel model, which verified and confirmed the relationship between architectural intent and the structural engineering design," Mr Bird said.

"This model was a key link in the design process, as it highlighted issues early in the design phase and allowed for problem resolution well before the fabrication or erection of steel work," he said.

CDES was also able to work within the tight Orange Base Hospital Project timeframes by fast-tracking shop detailing and breaking the project into a number of phases.

"At any one time we had up to five experienced and professional detailers working on various parts of the project, all in the one model," Mr Bird said. "We also implemented stringent document control procedures and modeling methods to ensure each area was kept as a standalone package, whilst ensuring that the complete model still retained its integrity," he said.

With such an extensive range of industry expertise, it is without a doubt CDES will continue to be the number one choice for future Structural Steel Detailing projects.



CDE STRUCTURES

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