

INGENIOUS DESIGN TO INSPIRE RECOVERY

The \$41.2 million Graythwaite Rehabilitation Centre features world class dining and living rooms, gymnasium, hydrotherapy, therapy assessment and cutting-edge treatment areas, and an external courtyard for therapeutic use and patient amenity.

PROJECT DIRECTOR : Health Infrastructure
PROJECT MANAGER : Aurora Projects
ARCHITECT : Nettleton Tribe
BUILDER : Richard Crookes Constructions
COST PLANNER : WT Partnership
STRUCTURAL AND CIVIL : Taylor Thomson & Whitting
ELECTRICAL AND LIFTS : Steensen Varming
MECHANICAL AND
MEDICAL GAS SERVICES : Sinclair Knight Merz
HYDRAULIC AND FIRE SERVICES,
INCLUDING HYDROTHERAPY POOL : Steven Paul & Partners
FIRE ENGINEERING : Raw Fire
BUILDING SURVEYING : Blackett Maguire + Goldsmith
TRAFFIC ENGINEERING : Halcrow
PLANNING : City Plan
PROJECT END VALUE : \$41.2 Million
COMPLETION : July 2013



Just like the process of recovery from major injury, the design and construction of the \$41.2 million Graythwaite Rehabilitation Centre (GRC) at Ryde Hospital required successful navigation of a range of challenges to achieve an excellent outcome. Health Infrastructure who is responsible for the delivery and management of all NSW Health capital works projects over \$10m has facilitated the project from planning through to delivery. Project Director Jeffrey Arthur said “the project has been very challenging and endured many obstacles, though it’s rewarding to see this impressive rehabilitation facility completed.” As Project Manager, Aurora Projects took responsibility for the various stages of the design, statutory approvals, budget and programme management, and construction process on behalf of Health Infrastructure, including supervision of contractor Richard Crookes.

The Centre will provide 64 general rehabilitation inpatient beds for working aged and older aged adults, plus associated services and facilities including generous dining and living rooms, gymnasium, hydrotherapy, therapy assessment areas, treatment areas and an external, sunken courtyard for therapeutic use and patient amenity.

The courtyard was also part of a number of design elements which addressed the core challenges of the constrained L-shaped site, which also had a six metre height difference and is situated among residential homes in an area with strong heritage elements. The design solution puts the entry one floor above the street, while the lower floor of accommodation at the rear of the site is three metres below the ground. The sunken courtyard is located at the rear to bring in natural light and offer a pleasant outlook.

“One of the most significant challenges was the fact that the design and construction of

the new rehabilitation centre was undertaken as a separate entity to the existing Hospital, however it still needed to maintain linkages with clinical services residing within the existing Hospital campus”, said Aurora Projects’ Daniel Lingwood, Senior Project Manager for the GRC.

“This presented the projects design team with several challenges relating to building services which was further problematic due to confined site boundaries, easements and clearances required. However, after a detailed site survey of services and clever thinking, solutions evolved that benefited all stakeholders and enabled the new facility to not only be constructed in a location which was physically surrounded by a fully operational hospital but enabled it to interface harmoniously with remainder of existing clinical services whilst according the necessary ICT interfaces.”

Physical connectivity for patient transfers and environmental services was resolved through the construction of a virendeel truss bridge structure with an infill concrete and metal deck floor over the main road for deliveries. Inside the GRC, the vertical transport system comprises two lift cores with facilities for the front of house and back of house movements, including accommodation for large bariatric patient beds.

The GRC is also linked to the Ryde Hospital through key aesthetic features in the design, such as a feature sandstone wall at the entry which picks up on the sandstone of Denistone House and the Stables, two historic buildings on the Hospital site. The facade colours reflect a natural and earth tones theme in a subdued palette which is in harmony with the Hospital and surrounding suburb, while the use of brickwork gives continuity with the extensive brickwork across the remainder of the site.

Structurally, the GRC comprises conventional reinforced concrete with the concrete pool structure isolated through the use of acoustic bearings to minimise any noise or vibration transfer to the rest of the building. A bored pile solution was used for the majority of shoring.

Sustainability was a priority, with building orientation and use of sun shading elements to assist in daylight control and in controlling the glare, while also allowing abundant natural light into patient areas.

“The building fabric has been designed to exceed the minimum Part J requirements by 10%, thus increasing its passive energy efficiency,” said Daniel.

“Project environmental aspects are often just looked at from the installation perspective rather than a maintenance point of view. While certain ESD initiatives were adopted such as alternatives to the standard PVC electrical cabling, it is the Safety in Design aspects that were adopted that have and will provide the facility with a sustainable solution.”

The design also focused on providing for recyclable and environmentally friendly materials, including HDPE for drainage systems, and recyclable copper and PEX pipework for the water supply systems.

Overall, through thoughtful design, meticulous construction and quality finishes, the GRC provides both formal therapy spaces and comfortable spaces for daily living activities which promote wellbeing, enabling an integrated and fluid recovery process for patients.

For more information contact Aurora Projects Pty Ltd, Level 6, 50 Berry Street, NORTH SYDNEY 2060, phone 02 8920 1838, website: www.auroraprojects.com.au



DESIGNED TO DELIVER A LIFETIME OF VALUE

In determining the right solution for the mechanical services and medical gas services designs for Graythwaite Rehabilitation Centre, Sinclair Knight Merz (SKM) added an extra dimension – time – to their calculations. This approach delivered systems which will be effective, compliant and energy-efficient not only at the point of commissioning, but throughout the operational lifecycle.

SKM employed the sustainability hierarchy of “LEAN-MEAN-GREEN” to achieve energy minimisation through a holistic, cross-disciplinary approach to the site and building’s thermal properties. The focus on “LEAN” and “MEAN” means the building and its systems (which have the most impact on power consumption of mechanical equipment) are carefully considered to understand and resolve issues such as thermal and solar gains, building operation and occupancy, as well as user operability and space comfort requirements. By assessing and optimising these elements, solutions that are both appropriate and energy efficient can be adopted. This is as opposed to relying on costly “GREEN” systems in order to achieve good energy outcomes.

During the strategy stage, SKM’s team worked in collaboration with the project’s other engineering and architectural consultants to explore technical alternatives which would match user needs and achieve an efficient and compliant outcome. A proactive approach to adding ongoing value meant SKM could design in appropriate elements from the outset, presenting the client with options incorporating projected ongoing life-cycle costs. The final design for the mechanical services was configured to match the building’s seasonal load profiles, therefore maximizing the Performance Coefficient of the mechanical plant and equipment.

Other key aspects included zoning the VAV air conditioning by building orientation and usage, reducing the need for reheating; and incorporating the use of outside fresh air as free cooling in favourable conditions. The air conditioning system for the hydrotherapy pool incorporates an air-to-air heat exchanger in the dedicated air handling unit, which recovers heat from the pool exhaust system. The system design paid careful attention to user comfort aspects, including the removal of chlorine odours, reducing condensation risks, and controlling air movements and velocities to prevent uncomfortable draughts. To ensure effective coordination amongst the key consultants, the contractor and relevant trades, 3D Revit documentation was adopted, and weekly consultant discussion meetings were held with the Project Manager and other disciplines.

SKM offers comprehensive design capabilities including innovative architectural, engineering and project management services for the hospital and healthcare sector, with a focus on multidisciplinary design for new facilities. Currently SKM have up to 200 staff working on health sector projects, developing designs which deliver both high levels of functionality and enhanced patient, visitor and staff amenities.

Other recent major health sector projects include Gold Coast University Hospital (\$1.85B), Lifehouse at RPA (\$142M), Nambour General Hospital (\$140M) and Liverpool Hospital (\$296M), and are currently working on mechanical services designs for Rockhampton Base Hospital (\$135M), Carnarvon and Exmouth Hospital (\$48M) and the Townsville Hospital Redevelopment (\$370M). On the New Children’s Hospital (\$1B) in Perth, SKM are the Technical Advisors for all engineering services.

For more information contact Sinclair Knight Merz, 100 Christie Street St Leonards NSW 2065, Tim Eley - Regional Manager Clients: Social Infrastructure (NSW), phone 02 9928 2134, email: TEley@globalskm.com, website: <http://www.globalskm.com/Market-sectors/Social-infrastructure>



STATE-OF-THE-ART SIPHONIC SOLUTION FOR RYDE HOSPITAL

The Graythwaite Rehabilitation Centre is a modern, 64-bed inpatient unit that promises to transform the rehabilitation process for citizens of Sydney. Located on the Ryde Hospital campus, the cutting-edge redevelopment will boast two inpatient wards, therapy areas, a hydrotherapy pool, courtyards and undercover parking.

The innovative centre will also feature an all-weather enclosed link running adjacent to Denistone House. This link provides direct access to the acute services of the hospital, enabling the smooth, seamless transfer of patients to and from the rehabilitation unit. One of the redevelopment’s most outstanding design features is its state-of-the-art drainage system, designed and installed by industry leaders Ultraflow.

Bertil Klintfalt established Ultraflow Siphonics in 1995 to offer world leading siphonic stormwater solutions to the Australian construction industry. Ultraflow pride themselves on having a flawless track record and delivering technical excellence.

As their website attests, the unique Scandinavian drainage system is “seen as technically superior and offering numerous cost and design advantages over conventional systems”.

For the Graythwaite Rehabilitation Centre, Ultraflow designed and installed roof drainage for the entire building. The centre posed considerable design challenges. Klintfalt points out the concrete

roof membrane, four inch thick Styrofoam and thick gravel ballast demanded consideration in design and outlet selection.

Fortunately, Ultraflow’s siphonic UF75 outlet with gravel guards delivered on all fronts, providing a high-performing stormwater solution that complements the rehabilitation centre’s modern, innovative design. Ultraflow boasts a flawless track record, with highly skilled engineers and world-class technology delivering great results for a diverse range of projects including the QANTAS Hub (Mascot), DFO (Homebush), and Tonsley Tafe (South Australia).

Our aim is to provide our clients with a first class siphonic stormwater solution, designed and installed in a timely, energetic and efficient manner. Klintfalt says the company’s success is evident in the Graythwaite Rehabilitation Centre.



For more information contact Ultraflow Siphonics, 322 Pacific Hwy Hornsby NSW 2077, phone 02 9482 1256, email: info@ultraflow.com.au



FABULOUS RESULTS UNDERFOOT

Even with the best looking floor coverings a project can obtain, what really makes for a brilliant and durable result is the bit no-one sees – underneath. That's the secret of Fab Floors Pty Ltd's success with projects like the Graythwaite Rehabilitation Centre for Richard Crookes. They always allow for floor preparation on a job, making sure the hard yards of diamond grinding are done, and that self-leveller is properly applied. The result is a high quality substrate for laying vinyl on, and ensures an excellent end result.

Fab Floors also bring 20 years experience to their trade, and a comprehensive knowledge of available products and their aesthetic and performance qualities. The company has a dedicated Project Management and Estimating team headed up by Wayne Schofield, who has been with Fab Floors since 1997.

"We have a good team, and we are always focused on ensuring materials arrive on site in a timely manner and works completed on time by our skilled and experienced installation workforce," said a Fab Floors Spokesperson.

Since beginning operations as a small home-based business with co-owner Alan Byrne quoting and installing every job with his team, the company

has grown through successful completion of projects across New South Wales and the ACT, including The Blue Mountains Cultural Centre and Manly Corso, also for Richard Crookes.

Two years ago, Fab Floors moved into a factory space in Riverwood, and established a commercial vinyl showroom which is open to commercial project clients from 9am-3pm Monday to Friday, or by appointment.

"A key part of achieving a high-standard vinyl floor is product choice, including the colour and texture of the vinyl. I have seen a lot of well-installed jobs which unfortunately used the wrong choice of vinyl and colour," explained Fab Floors. "When choosing commercial vinyl there are two main criteria - you want it to be easy to clean, and you also need it to look good even before it gets cleaned. Having the right commercial-grade vinyl for specific purposes and areas is vital, and our experience allows us to assist clients with making those product choices."

For more information contact Fab Floors Pty Ltd, 177 Bonds Road Cnr Jindalee Place Riverwood NSW 2210, phone 1800 FAB FLOORS, phone 02 9534 6500, fax 02 95346566, email: info@fabfloors.com.au, website: www.fabfloors.com.au