

# life cycle

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**CHRISTCHURCH JUNIOR SCHOOL**  
A fusion of Japanese & NZ design

**FROM ROCKETS TO RECIRCULATION**  
In conversation with David Norman

**TACKLING 21ST CENTURY CRIME**  
AFP forensic facility

**COMFORT & TECHNOLOGY**  
Key to Mater Hospital success

**170 QUEEN STREET**  
The heart of Brisbane reborn



life  
cycle

# COMFORT AND TECHNOLOGY KEY TO MATER DESIGN

Being in hospital is a stressful and sometimes traumatic experience, especially with serious health problems. Keeping a patient as comfortable as possible at a time when they are feeling vulnerable requires careful consideration of the patient experience. ▶



The advanced technology in the operating theatres allows surgeons to send images anywhere in the world.

With the patient experience in mind, the new Mater Springfield Health City project was conceived with patient and community wellness as a key objective. "Our focus was very patient centric," says Joanna Vasiliou, Director of Built Environment for Mater. "We wanted a hotel look with hospital functionality, and I think the outcome reflects this aspiration."

The project is Stage 1 of the Springfield Health City Precinct, a five floor, 80-bed private hospital including two inpatient units of 32 beds each, a four theatre operating suite, medical imaging services and a cancer care centre. Mater Cancer Care Centre Springfield was funded by \$21.4 million from the Australian Government in partnership with Mater and Radiation Oncology Centres.

Mater is the sole provider of inpatient services in the Springfield area -the third fastest growing urban area in Australia-, with a current population of 32,000 residents, which is expected to expand to 138,000 within the next 15 years, according to a 2013 URBIS report.

The design of Mater Private Hospital Springfield includes the provision for cutting-edge facilities, ergonomic work areas for staff, and patient rooms that allow the occupant to recover in a quiet and comfortable environment, where they maintain a level of independent control.

"Patients love it," says Fritha Mackay, Director of Mater Private Hospital Springfield. "The room quality, the ability to control the room environment, along with the mix of the physical space and the access to services makes them comfortable and happy."

Alex Brislan, Project Leader for Architectural firm PDT- Silver Thomas Hanley (PDT-STH), agrees, saying the project met the brief. "The Mater's client side project team were committed from day one to producing the very best healthcare facility for the community of greater Springfield, and also the best working environment for their staff.

"When the client is this focused on outcomes, it really energises the design team to be innovative, to come up with fresh ideas and work hard to bring the vision to life. Coming from a functional design and functional planning point of view, it promoted innovation and that's what helps with morale on such a long project, and improves the end result," adds Brislan

In addition to core engineering services, Norman Disney & Young (NDY) was tasked with providing innovative solutions to patient comfort, while laying the future-proofed infrastructure required for modern healthcare facilities, all within tight time and budget constraints.



The interior design palette reflects themes and colours from the surrounding natural environment.

## SUSTAINABLE BUILDING

Sustainable design was also a high priority, with a requirement for energy efficient lighting, plantation timber, optimum use of shading and light, and extensive application of passive energy principles. Plant machinery, was also a focus, with special consideration given to gas exhaust, for medical gases used in the facility.

The facade was designed to make maximum use of the available natural light. Collaboration between builders, architects and engineers meant the end result was highly energy efficient, while still being robust and aesthetically pleasing.

"We designed a new facade that required a totally different approach to lighting," Brislan says. "By discussing our design vision and technical possibilities with the NDYLIGHT team, we were able to come up with a solution that we're very happy with. It's particularly striking at dusk. This collaborative approach has resulted in a spectacular result for Mater."

## KEEPING PATIENTS COMFORTABLE

With patient experience as a key focus of this newly created facility, Mater made the decision that the hospital would do things a little differently.

One such innovation was removing set visiting hours.

Family and friends are encouraged to visit at any time that is convenient to them, and pull-out beds are provided in every room for visiting partners. One of the more unique innovations was an integrated Individual Room Control (IRC).

"The inpatient units were designed with Individual Room Control which allows the patients to control their environment from the bedside," says Jamie Hayes, Project leader at NDY. "This includes control of lighting, blinds, temperature, and entertainment systems, without affecting other patients in the ward, or requiring staff assistance."

An important design consideration was future-proofing the technology, so that the facility will be able to utilise the latest equipment, now and in the future.

One example is the linear accelerator.





## KEY COLLABORATIVE TEAM

**CLIENT** Mater Health Services

**ARCHITECT** Silver Thomas Hanley

**BUILDER** Watpac Constructions

**PROJECT MANAGER** Aurecon

**STRUCTURAL ENGINEER** Cardno

**ENGINEERING SERVICES** NDY

## SERVICES PROVIDED BY NDY

- ▣ Acoustics
- ▣ Electrical
- ▣ Fire detection and fire protection
- ▣ Hydraulics
- ▣ ICT
- ▣ Lifts
- ▣ Mechanical
- ▣ Medical gases

The design called for a single machine, with the provision for another should it be required. "We had a second bunker put in for another linear accelerator," says Mackay. "The current machine is already getting a lot of use, so while it was expensive to put that second bunker in, there will be a requirement for it in the very near future."

Likewise, an entire side of the building was constructed with a 'sacrificial wall'. When stage two is developed, this wall will ensure that the hospital remains operational. When the building is complete, the wall can be easily removed, and the corridors, infrastructure and systems will link up seamlessly.

Noise was also a big consideration for the building. A comprehensive review of the facade was undertaken, with the goal of minimising the impact from external and internal noise sources. The result was a comprehensive insulation and structural solution that included selecting noise dampening flooring, wall cavity insulation and sound absorbing materials in appropriate areas.

This feature quickly proved its worth.

"Mater is currently surrounded by a building site," Mackay says. "I'm looking out of my office window, and I can see 20 heavy construction machines, but I can't hear them at all, and neither can the patients."

The acoustic insulation provides patients with the peace and quiet to assist with recovery, even while in the middle of a large building site.

## INNOVATIVE SOLUTIONS

A major focus of the hospital design was on staff usability. The internal environment enables staff to work comfortably and efficiently, and allows staff to provide a better level of care to the patients.

RFID tracking of equipment and staff was another intelligent digital innovation. As well as helping staff locate equipment rapidly, it incorporates an automated nurse presence within each of the patient rooms; staff immediately know if they are needed to attend to a room, improving efficiency and patient care.

There is also capacity for a comprehensive range of private medical specialists, including dermatology, orthopaedics, oncology and surgical suites. By keeping these facilities under one roof, patients have convenient access to specialists all in one area, serving the region as a central hub for a large proportion of their health needs.

## PLEASING AESTHETICS

"The aesthetics are very important to us, as it forms part of the patients experience, it is what the patient can see and therefore comment on," says Vasiliou. "Patients don't comment so freely about their clinical care as they do about the environment that they are being cared in. It was important to have the comfort factor for the patient experience".

The quality and aesthetic of all spaces was a prime consideration in the design of the building. Creating this environment required high levels of collaboration. When the mesh screen that forms part of the facade was put in place, it was less opaque than expected. This necessitated modelling the effect that a more restrictive mesh would have on acoustics, airflow and the heat levels of the rooftop machinery. Factoring in all these variables produced a collaborative, holistic solution that integrated into the form and functionality of the project.

## A COLLABORATIVE APPROACH

According to Brislan, taking a collaborative approach was especially useful in the design phase, given that people come from a range of disciplines and backgrounds. "We worked with a lot of people across all the building services disciplines, plus others, like acoustics, fire and the like. The NDY team – particularly the senior people – obviously brought a wealth of experience to the table from previous complex hospital and healthcare projects. The stand out was NDY's commitment to maintaining good working relationships. It's obviously difficult at times working on a complex project with a lot of different stakeholders, but that spirit of working well together really came through."

NDY's Project Manager Jamie Hayes considered the project challenging, but exciting. "Working on a project of this magnitude and impact was a once in a lifetime opportunity," Jamie said. "The tight budgets and timeframe meant we had to develop some clever solutions to suit the brief, such as making very efficient use of plant space to minimise the cost and avoid the need to modify the building."

For Vasiliou, opening day was a highlight. "It was a great feeling to be able to open the doors and have patients through on day one. The systems just turned on and worked. A real world outcome for the design, and it met the brief. We're all very proud of the facility."

Mackay echoed Vasiliou's sentiments: "Our patients and the public have been universally impressed by the building. They 'ooh' and 'aah' as they walk through the door. We managed to achieve a bespoke look on a tight budget."



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