



**Norman
Disney &
Young**
A TETRA TECH COMPANY

Health

Capability
Statement

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**NDY by
numbers**



established
1959



600+
people



9
key markets

12

offices



5
countries

Introduction

“We understand that our clients want to work with industry thought leaders. That’s why the core focus of our health team is to provide specialist, integrated and forward-thinking consulting services to the healthcare industry.”

Alex Rodger

Director Health Services
Norman Disney & Young



Thank you for considering Norman Disney & Young (NDY) for your next Healthcare project.

Since 1959, NDY have contributed to many landmark projects, including recent transformative health buildings, such as New Bendigo Hospital, the South Australian Health and Medical Research Institute (SAHMRI), Perth Children’s Hospital, The Queen Mary University London Biosciences Innovation Centre, and Mercy Hospital in Dunedin.

Our purpose is “Making Spaces Work”. This extends to creating engineering service solutions that achieve the capability, operational efficiency and occupant experience goals of our clients and their partners.

Our mission is to actively contribute to enhancing the Health sector, through providing innovative and effective solutions that complement the goals and direction of our clients.

Our approach is centred around exceeding client expectations through:

- › A Truly collaborative approach. At NDY, we understand that what we do has to seamlessly integrate with our partners and stakeholders on the project. By facilitating open and direct communication channels, we can support the needs of all project partners.
- › Meaningful Leadership. We understand that Leadership is more than just arranging meetings and responding to client needs. To us, Leadership is about being accountable to all stakeholders, and driving the engineering service design towards a solution that exceeds the expectation of our client.
- › Providing Intelligent Innovation. Every project is different. Our goal is to leverage emerging technologies and processes to ensure that the project benefits from the very latest in engineering service solutions.
- › Being Accountable. We believe in our people, and the work they do. We stand behind our people and always aim to provide work of the highest standard.
- › Acting with integrity throughout the project. NDY remains accountable for all decisions we make: we take ownership for those elements of the project over which we have control.
- › Taking a scientific approach. NDY follows a structured approach, formulated through the course of hundreds of successful projects around the world. Our people reinforce their intuition with reliable data and in-depth analysis of emerging technologies.

This document showcases some of our relevant capabilities and project experience. Please consider it an example of how we can assist you on your next project, and feel free to contact me with any queries you might have.

Sincerely,

Alex Rodger
Director Health Services
Norman Disney & Young

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Our **values**

Excellence

Do it once, do it well

Leadership

**Lead in our profession, industry
and the community**

Integrity

Treat others as we wish to be treated

Collaboration

Listen, share and contribute

Accountability & Ownership

**Understand the impact of our actions
and own the outcomes**

Innovation

Inspired creativity to challenge the norm

Our purpose
is making
spaces work

Our **vision**

To enhance the lives of others,
by engineering outstanding projects,
mindful that every project matters.

To sustain deep and trusting
relationships with our clients,
through solving their problems and
serving them with utmost reliability,

and

To engage our people with
meaningful, rewarding and
inspiring opportunities.

Our ethical statement

NDY has a proud tradition of upholding the highest ethical standards in the manner by which we conduct ourselves as a company. Read our ethical statement at www.ndy.com/about-us/our-ethical-statement



What **we** do

As consulting engineers, our purpose is making spaces work. We listen to the unique requirements of each client, and tailor our services accordingly to every project.

Our collaborative approach to excellence and innovation are core values at NDY. We consistently deliver best practice sustainable solutions to achieve our clients' objectives.

Clients come to NDY because they want quality. We take ownership and provide clear recommendations while consulting with the utmost integrity.

Most of all, clients come to us because we listen. We look forward to better understanding your business and collaborating with you to achieve successful outcomes.

Our markets

- › Civic
- › Education
- › Health
- › Industrial
- › Mission Critical
- › Offices
- › Residential & Hotels
- › Retail
- › Transport

Our services

- › Acoustics
- › Asset Performance
- › Audio Visual
- › BIM (Building Information Modelling)
- › Communications
- › Controls & Integration
- › Electrical
- › Fire Engineering
- › Fire Protection
- › Hydraulics
- › ICT Consultancy
- › Interiors
- › Mechanical
- › NDYLIGHT (Lighting Design)
- › Property Consultancy
- › Security
- › Sustainability
- › Vertical Transportation

Our **health capabilities**

NDY Health has a significant track record in delivering acute health, aged care and laboratory projects throughout Asia, Australia, Canada, Europe, New Zealand and the UK.

Our health capability is enhanced by qualified and skilled personnel within each of our specialist disciplines, with each practitioner possessing demonstrated experience working on healthcare projects.

Our focus is on designing smarter hospital systems that contribute positively to improving the health facility environment, without compromising safety for patients and staff.

NDY Health adopts an integrated approach to sustainability; we understand the impact of our design solutions on the building aesthetics, functionality and ongoing maintenance of a facility.

Accordingly, we adopt a holistic and innovative approach to sustainability through incorporating evidence based design solutions that support the creation of a healthy healing environment both within and around the health facility.

NDY Health's experience is that implementing technology for the sake of technology can only lead to a poor outcome. Our approach to ICT service delivery begins with an in-depth client consultation, designed to facilitate a detailed understanding of the project objectives: business goals must be clearly set and understood from the onset.





Royal Children's Hospital (RCH), VIC

With NDY Health, you gain access to a team with:

- › An appreciation of the worldwide focus on improving the “patient experience”
- › Maintaining “ownership” of every project from concept development through to project completion including post occupancy evaluation
- › World-leading BIM capabilities
- › Experience fostering enduring and trust-based strategic relationships with clients
- › A strong commitment to innovative design as part of a multi-disciplinary team
- › Continuous expansion and refinement of our expertise in health, aged care and laboratory design
- › Provision of service outcomes that align with client business plans
- › Emphasis on early consultation to ensure design fundamentals are catered for
- › A strong focus on risk management and quality assurance to ISO 9001.2008
- › Delivery of solutions that are environmentally responsible and sustainable
- › A high level of expertise and customer service.

NDY & Public Private Partnerships (PPP)

Our health experience on PPP projects means we understand the imperative for the public sector to deliver upon its objectives, in particular, value for money outcomes. NDY Health's involvement with PPP bids include:

Royal Children's Hospital, VIC

Team: CHP (Lend Lease/Babcock Brown/Spotless)

New Bendigo Hospital, VIC

Team: Lend Lease/Capella/Spotless

Bioscience Research Centre, La Trobe University, VIC

Team: InfraNova (Leighton/ABN Amro)

New Royal Adelaide Hospital, SA

Team: Brookfield Multiplex (BM withdrew)

Victorian Comprehensive Cancer Centre, VIC

Team: Aptus (Brookfield Multiplex/Macquarie Bank)

Royal North Shore Hospital, NSW

Team: CHP (Lend Lease/Babcock Brown/Spotless)

Sunshine Coast University Hospital, QLD

Team: Laing O'Rourke/Macquarie Bank

Sustainability & healthcare

At NDY, sustainability is in our DNA. It's not an 'add-on' but an intrinsic part of everything we do.

We're committed to delivering buildings, facilities and infrastructure that contribute to a sustainable future – because we know that sustainability is not only better for our cities and communities, but also for our clients.

At NDY, we practice what we preach. We have attained global ISO14001 accreditation, we report annually on our own corporate sustainability initiatives through the Global Reporting Initiative (GRI) framework, and our Australian offices are either certified or registered for Green Star and NABERS ratings.

We understand that sustainability and health are inextricably linked. In fact, the health sector's commitment to environmental sustainability is underpinned by the philosophy to "first, do no harm".

NDY's point of difference is our commitment to 'enlightened engineering'. Our team applies 'salutogenic' design principles to create sustainable living environments that enhance health, wellness and well-being.

We've helped our clients in the healthcare sector to achieve significant financial savings by addressing building operations issues – from energy and emissions minimisation to water conservation, and from waste management to noise reduction.

And we continue to develop efficient, cost-effective solutions that deliver on the 'triple bottom line' of environmental, economic and social sustainability, and leave a legacy of places that enrich people's health, well-being and lives.



A salutogenic approach is evident in the design of Melbourne's Royal Children's Hospital

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At NDY we take our responsibility to our clients very seriously. A clear understanding of their objectives enables us to provide the best possible advice specific to their needs.



Alex Rodger
Director Health Services
Norman Disney & Young

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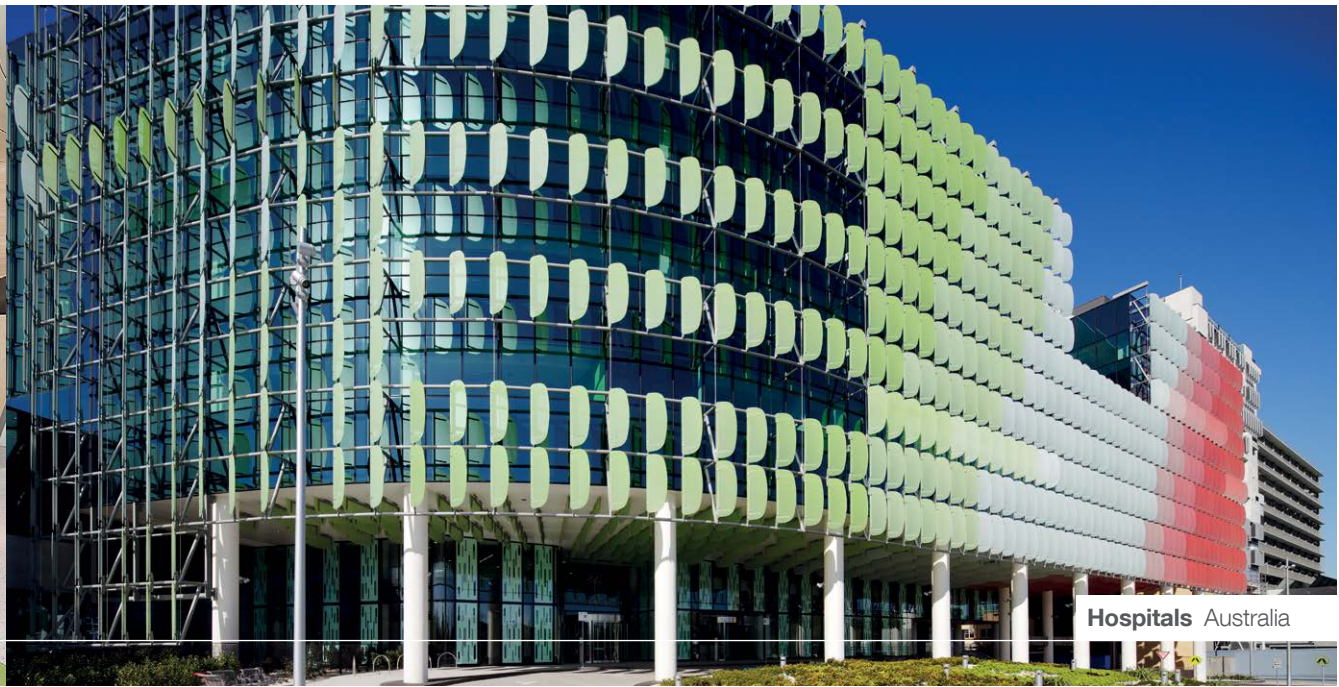
Royal Children's Hospital (RCH), VIC

NDY **health experience**

For more than sixty years NDY has provided consulting engineering services on strategic projects throughout Asia, Australia, Canada, Europe, New Zealand and the UK.

These award-winning projects are testament to the quality of our innovation, expertise and personnel. The following examples of our experience are a snapshot of our ability to deliver world's best practice for master planning projects of all sizes.

To view a comprehensive outline of our project experience visit our website **www.ndy.com**



Royal Children's Hospital (RCH) Melbourne, VIC

Services:

- › Architectural Lighting (NDYLIGHT)
- › Electrical
- › Fire Engineering
- › Fire Protection
- › Hydraulics
- › ICT
- › Mechanical
- › Security
- › Sustainability
- › Vertical Transportation

About the project:

RCH is Australia's first hospital with an independently assessed 5 star rating based on the GBCA's health pilot tool. The facility also incorporates the Murdoch Children's Research Institute comprising around 25,000sqm of laboratory space, as well as space allocation for the University of Melbourne. It is one of the largest hospital projects undertaken in Australia and takes a holistic approach to children's health.

Features and Innovations:

- › A 47% reduction in greenhouse gas through the use of solar pre-heating DHW heating and 600kw biomass boiler
- › Inclusion of a 2.8MW gas-fired cogeneration plant
- › Active chilled beams in offices and consulting rooms
- › Low or non volatile compounds in carpets, vinyls and paints
- › Rainwater collection from 75% of new roof areas
- › Blackwater treatment plant for reuse of wastewater
- › Mixed mode ventilation to main street incorporating a labyrinth and innovative acoustic strategy to deal with helipad noise.

Awards:

The Royal Children's Hospital has won more than 30 awards, including:

Consult Australia 2012 Awards for Excellence:

- › [Gold Award for Collaboration](#)
- › [Highly Commended for Sustainability in Design](#)

Design & Health International Academy Awards 2012:

- › [International Health Project \(over 40,000sqm\)](#)
- › [Sustainable Design](#)

Property Council of Australia Innovation & Excellence Awards 2013:

- › [Victorian Development of the Year](#)
- › [John Holland Award for Best Public Building](#)

National Infrastructure Awards 2012:

- › [Project of the Year](#)

Australian Property Institute Excellence in Property Awards 2012:

- › [Charter Keck Cramer Property Development Award](#)
- › [Investa Property Group Environmental Award](#)

Building Products News Sustainability Awards 2012:

- › [Best of the Best Award](#)
- › [Public Building & Urban Design Award](#)



New Children's Hospital Nedlands, WA

Services:

- › Acoustics
- › Audio Visual
- › Communications
- › Electrical
- › Fire Engineering
- › Fire Protection
- › Hydraulics
- › ICT
- › Mechanical
- › Security
- › Sustainability
- › Vertical Transportation

About the project:

The \$1.2 billion Perth Children's Hospital will provide the best possible clinical care for future generations in Western Australia and will be the base for continuing WA's outstanding paediatric research with the co-location of the Integrated Research and Education Facilities, including the Telethon Kids Institute.

Replacing the existing Princess Margaret Hospital, the new facility is located on the QEII Medical Centre health precinct in Nedlands, Perth. The project was procured via a 2 stage managing contract arrangement. Construction began in January 2012 and was completed in late 2018.

The hospital has almost 300 inpatient beds and will provide tertiary-level health services and key secondary health services, acute treatment and diagnostics.

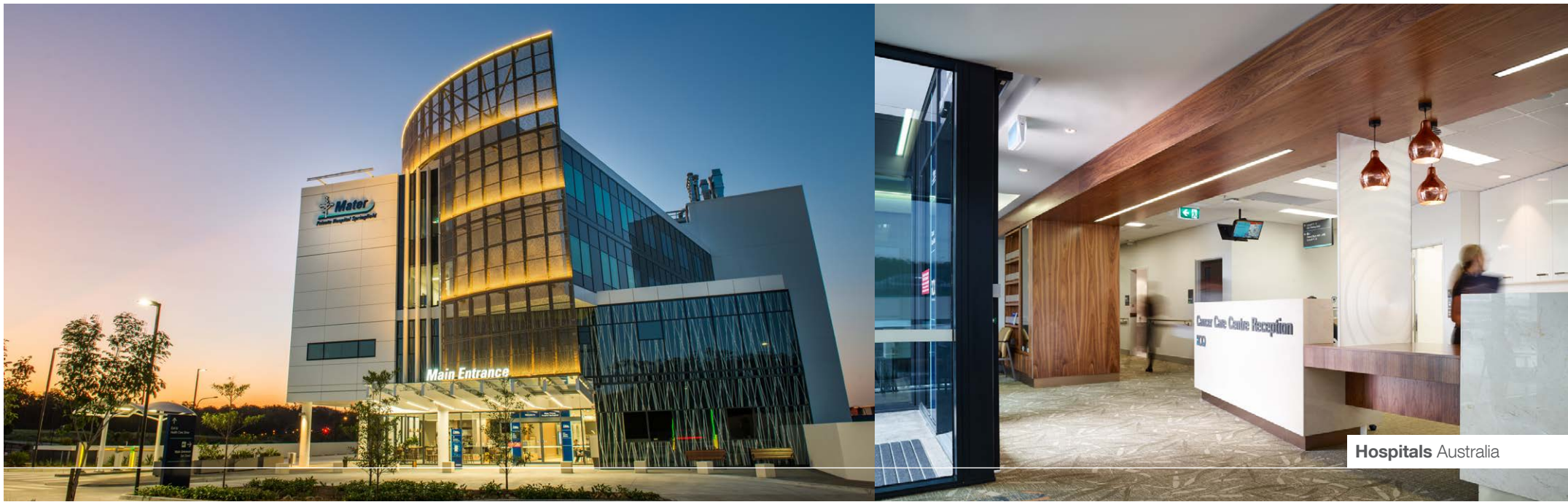
The facilities include intra-operative MRI, specialist theatres and imaging, emergency department, burns, oncology, pharmacy, sterile services unit, mental health inpatient and outpatient care, allied health services and ambulatory care. The building features a Northern Winter Garden, a double skin active facade, a hydrotherapy pool, an auditorium, a large central atrium, a helipad, cinema and recreation facilities (indoor and outdoor) including the Starlight Foundation, and significant additional back of house support and office accommodation.

NDY were appointed as the building services consultants for all core disciplines and specialist services, and were at the forefront of the adoption and use of BIM/Revit throughout the project, including for 3D visualisation, clash detection, change management, laser guided services setting out, on site quality management and preparation for FM integration.

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Replacing Princess Margaret Hospital, the new facility is located on the QEII Medical Centre site in Nedlands.

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Mater Springfield Private Hospital, Springfield, QLD

Services:

- › Acoustics
- › Audio visual
- › Communications
- › Electrical
- › Fire
- › Fire Engineering
- › Hydraulics
- › Mechanical
- › Pneumatic Tubes
- › Security
- › Vertical Transportation

About the project:

The new \$85 million Mater Private Hospital Springfield Stage 1 consists of a 10,000m², 80 bed Hospital and is the first phase of the planned approximately 8.7 hectares of Health City at Springfield.

The Australian Government funded \$21.4 million for the Cancer Care Centre which includes one linear accelerator (initially, with provision for another in future) and 15 medical oncology treatment bays.

There is a privately operated medical imaging department on-site, theatre suite consisting of 4 state of the art theatres and a 32 bed inpatient unit.

The patient bedrooms contain Integrated Room Controls which allow the patient to control their environmental conditions including lighting, sunlight and temperature leading to a more comfortable patient experience.

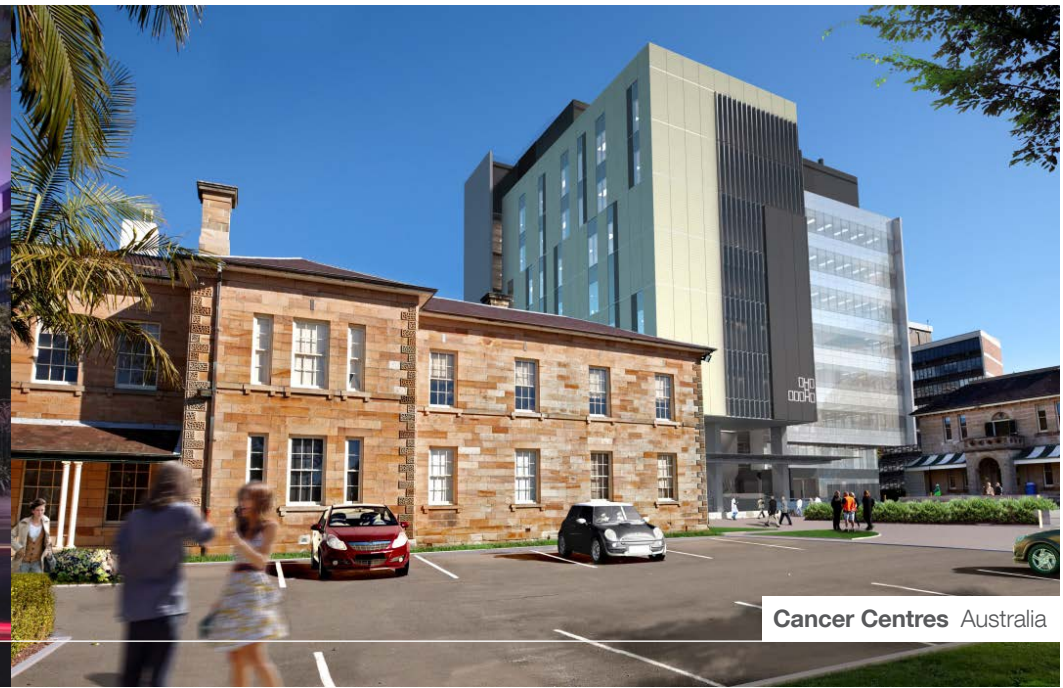
ICT components include full RFID tracking using the wireless access point system.

Mater has a master plan for the hospital precinct of Health City which incorporates a number of expansion stages designed to meet the growing demands of the region.

Features and Innovations:

- › The Individual Room Control allows the patients to control their environment from the bedside. This includes control of lighting, blinds, temperature, and entertainment systems.
- › 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.

- › 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 space for 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.



Cancer Centres Australia

Prince of Wales Nelune Cancer Care Centre **Sydney, NSW**

Services:

- › Acoustics
- › Electrical
- › Fire Engineering
- › Fire Protection
- › ICT
- › Mechanical
- › Security
- › Vertical Transportation

About the project:

This \$79M project is the consolidation of the Prince of Wales Cancer Care Services as well as the addition of UNSW Advanced Treatment Centre and Sydney Children's Hospital consult/office spaces. This project is complex in nature due to the multiple "tenants" as well as the staged construction that is required to complete the project. The project is divided into three contracts; Early Works, Stage 1 and Stage 2.

“

This project is complex in nature due to the multiple “tenants” as well as the staged construction that is required to complete the project.

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Sydney Adventist Hospital Redevelopment (Stage 1) Sydney, NSW

Services:

- › Acoustics
- › Audio Visual
- › Electrical
- › Fire Engineering
- › Level 3 ASP
- › ICT
- › Security
- › Sustainability
- › Vertical Transportation

About the project:

The \$181 million redevelopment project represents a major expansion of the hospital's services and facilities. Stage 1 includes an expansion to the existing clinical services building with provision for 200 new beds and twelve additional operating theatres, a new purpose built integrated cancer centre, new entry and arrivals building, and multi-deck car park.

Features and Innovations:

- › The project required multiple packages of enabling works and infrastructure upgrades to be designed and documented for the new development. An extensive in-ground survey was undertaken to inform the design.
- › NDY worked in conjunction with Ausgrid and the Contractors to define the route for a new high voltage feeder to the site.
- › NDY was required to coordinate the required interfaces and provisions of specialist medical vendors.
- › Apart from the multiple enabling and infrastructure packages of works required for this project, additional packages of works for car park, entry building, base building and fit-out were required to be designed and documented. This was a unique challenge in terms of coordination and resourcing which NDY overcame.

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An extensive in-ground survey was undertaken to inform the design.

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Watch our New Bendigo Hospital video documentary on NDYTV
www.ndy.com/news/new-bendigo-hospital



Hospitals Australia

Bendigo Hospital Bendigo, VIC

Services:

- › Electrical
- › Fire protection
- › Hydraulics
- › ICT
- › Mechanical
- › NDYLIGHT
- › Security
- › Sustainability
- › Vertical transportation

Awards:

2017 International Interior Design Association

› Health Care: Best of Asia Pacific Design Award

2018 Property Council of Australia

› Rider Levett Bucknall (RLB) Victorian Development of the Year award

2019 Good Design Awards:

- › 2019 Urban Design
- › 2020 Vision Green Design

About the project:

The Bendigo Hospital project will provide an outstanding new regional hospital with expanded capacity including an integrated regional cancer centre and a new psychiatric inpatient facility. NDY was appointed by the Victorian Government as part of the successful Exemplar Health consortium to design, build and operate the new hospital. The consortium comprises Capella Capital as sponsor and Lend Lease responsible for construction with architects Silver Thomas Hanley and Bates Smart. Lend Lease is also providing equity with Siemens. Spotless are the facilities managers.

The new hospital will assist Bendigo Health to provide the health services expected by the community in the 21st century, attract and retain the best staff, train the future health workforce for Bendigo and beyond, and support the other health services as part of an effective regional health system.

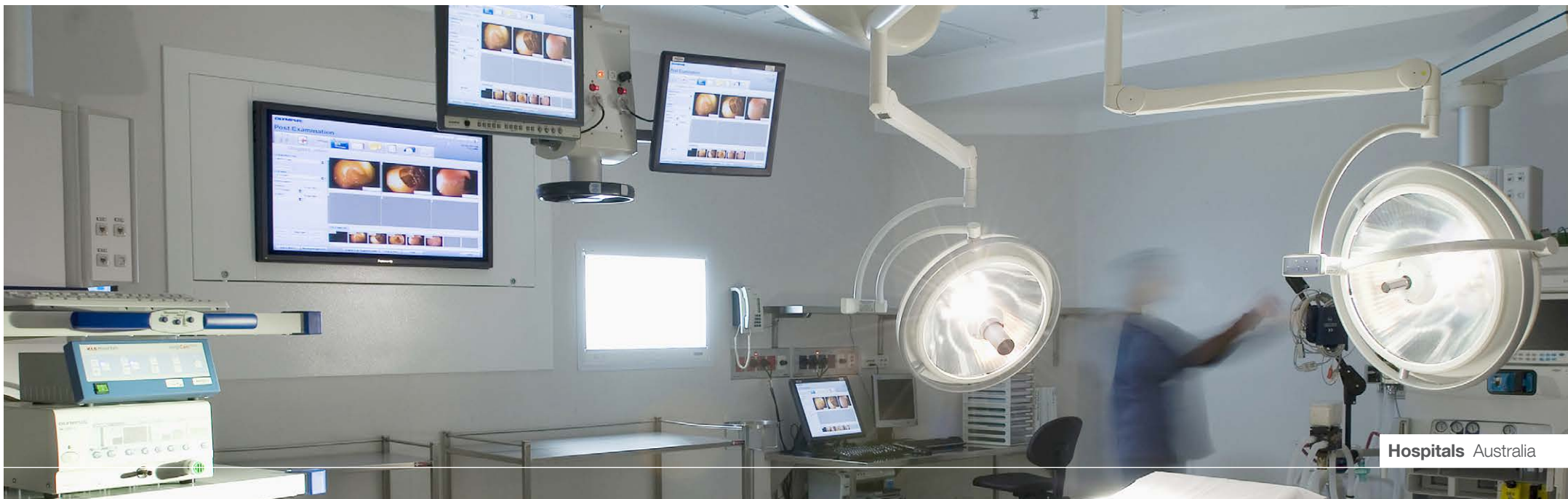
The state has invested \$630 million in capital funding. In general terms, the project will deliver:

- › A new acute hospital on the Barnard Street site with 327 acute inpatient beds, 72 same day beds, 80 psychiatric inpatient beds and 10 operating theatres.
- › A new integrated regional cancer centre with 26 chemotherapy places (included in the acute same day beds above), 4 radiotherapy bunkers and 30 consulting rooms.
- › A satellite dialysis facility with 16 places (included in the acute same day beds above)
- › Diagnostic, outpatient, staff, education, administration, public and back of house spaces to complement the above
- › Investment in ICT to facilitate effective care delivery and efficient work practices, to provide the essential tools to support 21st century learning and research, including electronic medical records.

Features and Innovations:

Some of the services features included in the design are:

- › Rainwater off 80 per cent of the available roof area is captured for reuse.
- › Diesel Rotary UPS generators provide mission critical redundancy to both clinical and technical loads.
- › Two 800kW cogeneration plants are provided coupled also to an absorption chiller providing trigeneration functionality.
- › Low or non volatile compounds in carpets, vinyls and paints.
- › Heat rejection via new adiabatic cooling technologies that save water and power (and do not require registration as cooling towers).



Ashford Private Hospital **Ashford, SA**

Services:

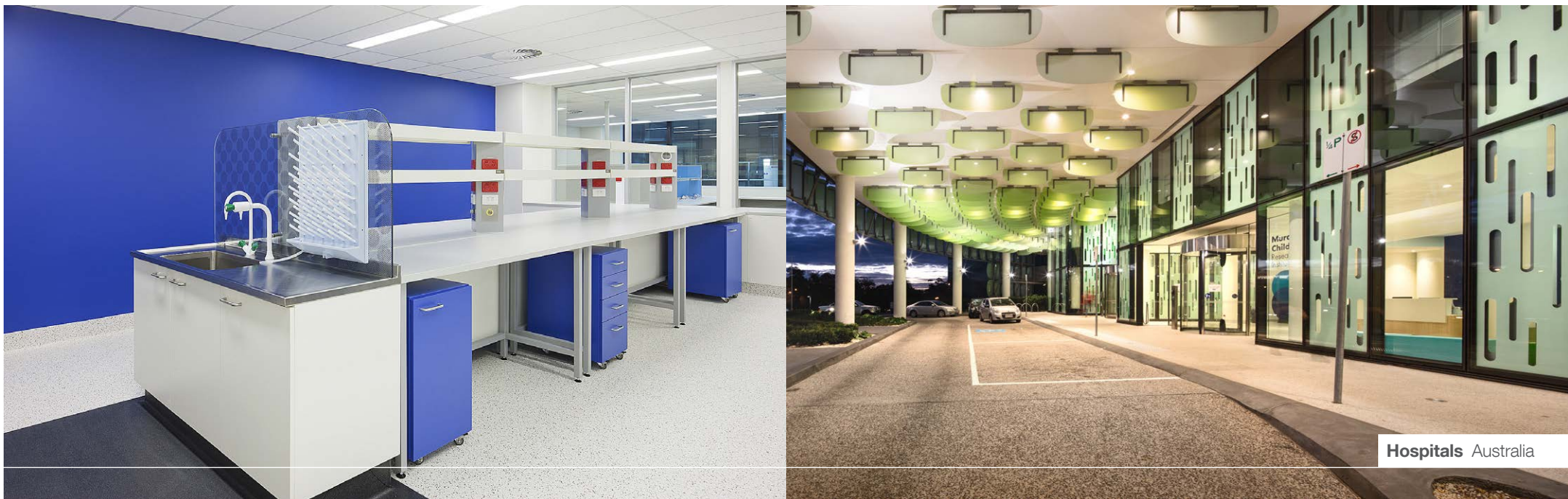
- › Acoustics
- › Electrical
- › Fire protection
- › Hydraulics
- › Mechanical

About the project:

To improve the services offered to the community and to take advantage of technological advances in healthcare, Ashford Private Hospital made the decision to convert four existing day surgery units to three digital theatres and an endoscopy suite.

Features and Innovations:

- › The new theatres were constructed in an existing building, which was originally built as a nurses' home in the 1950's. The building has limited ceiling space available to accommodate the complex services required for a digital theatre facility and NDY were required to undertake detailed site analysis to identify cost-effective and practical solutions for the new development.
- › During the construction phase, NDY's role was extended to assist in accelerating the construction program by providing assistance to the builder in the coordination of the services with the building works during construction and commissioning.
- › NDY were also responsible for the design and documentation of specialist systems such as medical gases, suction systems, positive pressure systems for infection control, patient alarm systems, body protection, uninterruptable power supplies, reverse osmosis systems and UV sterilising.



Hospitals Australia

Murdoch Children's Research Institute (MCRI) Melbourne, Vic

Services:

- › Communications/ICT
- › Electrical
- › Fire Engineering
- › Fire Protection,
- › Hydraulics
- › Mechanical, Security
- › Sustainability/ESD
- › Vertical Transportation.

About the project:

MCR represents a major stakeholder in the new \$1 billion Royal Children's Hospital (RCH).

As part of the new RCH, MCRI has expanded their facilities from 1,400 sq m to 20,000 sq m, including PC2 and PC3 laboratories, offices, support spaces, animal house, diagnostic laboratories, pathology, microbiological research, cell and gene therapy, tissue culture, cryo storage, clinical trials and common areas.

MCRI is one of the top three medical research institutes in Australia and specialises in children's health. It is a separate legal entity with its own board of directors, but works closely with RCH in undertaking and facilitating research into infant, child and adolescent health. MCRI has approximately 700 staff, with an annual operating budget of approximately \$60 million.

Features and Innovations:

- › All the laboratories were fitted with high and low level exhaust ventilation to remove any contaminants and prevent against spills and gas leakages. Provisions were also made for snorkel exhaust systems to be extended over specific test benches. Oxygen depletion sensors and alarm systems were provided to detect against gas leaks and ensure a safe working environment. These control and monitoring systems were also connected to the building management systems.
- › Airflows and pressure regimes were carefully set-up and monitored where required to ensure compliance with the PC2/PC3 containment requirements.
- › The lab bench systems were fully integrated with the engineering services (power, data gases etc.) to provide the most flexible working environment for the users. Each of the labs was made as generic as possible to enable flexibility in the usage of each of the lab pods for future adaptability.



Hospitals Australia

St Vincent's Hospital (Ongoing)

Melbourne, VIC

Services:

Communications, Electrical, Fire Engineering, Fire Protection, Hydraulics, Mechanical, Security, Sustainability and Vertical Transportation.

About the project:

NDY has been involved with redevelopment works at the St Vincent's Hospital since the 1990's, performing over 200 projects with them. These projects range from fire safety audits, risk assessments, master planning and infrastructure reviews to full building additions, tenancy fit-outs, department expansions, major equipment installations and infrastructure upgrades.

Features and Innovations:

- NDY completed a site cogeneration study when the contract for supply of steam and electricity from a third party cogeneration facility expired in 2008. This study involved a detailed assessment of the options to terminate or renew the contract.



Hospitals Australia

Victorian Comprehensive Cancer Centre (PPP Bid Phase)

Melbourne, VIC

Services:

Acoustics, Electrical, Fire Engineering, Fire Protection, Hydraulics, Mechanical, Specialist Lighting, Sustainability and Vertical Transportation.

About the project:

NDY provided all engineering services plus acoustics for the Multiplex/Macquarie (Aptus) PPP bid for the Victorian Comprehensive Cancer Centre, a new \$1billion facility being constructed in Parkville. While Aptus was unsuccessful with their bid, NDY's design was judged the leading solution from all three bid teams based on feedback from the State.

Features and Innovations:

- The extent of NDY's involvement included an initial world tour of cancer facilities, plus 12 months of design which extended through schematic design and part way into design development, sufficient for the pricing of the bid by the various Trades supporting the Aptus Consortium bid.



Hospitals Australia

Fiona Stanley Hospital

Murdoch, WA

Services:

Fire Engineering and Fire Protection.

About the project:

The new \$1.7 billion Fiona Stanley Hospital is due for completion in 2015, and the 643 bed hospital will be the major tertiary hospital for the south metropolitan region.

Features and Innovations:

- NDY fire engineers developed a holistic fire safety solution to ensure the development complied with the performance requirements of the Building Code of Australia (BCA), including a master-plan fire engineering report, which details the fire safety requirements for the building, covering the structure, compartmentation (passive fire protection), emergency egress of occupants, active fire protection including automatic and manual suppression systems, fire and smoke detection, occupant warning and mechanical smoke hazard management systems.



Manilla Combined MPS Healthone Facility **Manilla, NSW**

Services:

Electrical, Fire, Hydraulics and Mechanical.

About the project:

The new facility is located on the same site as the original hospital in Manilla, a regional township north of Tamworth. The design solution needed to facilitate the staging of the construction works to allow the progressive decanting of services from the existing hospital to the new facility.

Features and Innovations:

- › Flexible design to meet both the needs of the Hunter New England Health Service and the budget limitations for the project.
- › Detailed design of staging works for all services to suit progressive construction of new facility on the same site as the existing operating hospital.
- › Functional design of all services to provide the flexibility required to satisfy the diverse user needs expected within a multi-purpose facility.
- › Use of rainwater harvesting and energy efficient domestic hot water heating, incorporating warm water loop system.



Mackay Base Hospital **Mackay, QLD**

Services:

Communications, Electrical, Fire, Hydraulics, Mechanical, Security and Vertical Transportation.

About the project:

The \$405 million redevelopment of the Mackay Base Hospital includes a new acute hospital building and emergency department. The overall redevelopment has nearly doubled the number of beds to 318 and expanded the capacity of many existing facilities, including operating theatres, coronary, dialysis and intensive care units, day oncology and delivery suites.

Features and Innovations:

- › Redevelopment involved several stages and extensive decanting while maintaining business continuity throughout during infrastructure upgrades.
- › Utilising rainwater in mechanical cooling towers.
- › Decreased potable water usage whilst maintaining system efficiency.
- › Paediatrics distraction therapy luminaries: working with nursing staff to develop a luminaire which would offer a distraction to the paediatric patients brought into the emergency room.
- › Dessicant wheel dehumidifier and plate heat exchanger for outside air pre-treatment for humidity control.
- › All outside air through cooling to remove humidity before supplying to building Air Handling Equipment.



St John of God Comprehensive Cancer Centre **Perth, WA**

Services:

Mechanical and Medical Gas Services, and subsequent commission for Fire, Electrical and Vertical Transportation services approval reviewing role for the Department of Health.

About the project:

The \$14 million (TCC) project incorporates oncology day treatment facilities, radiation therapy, brachio therapy, ward areas, consulting suites, research facilities, education areas and pathology laboratories.

Features and Innovations:

- › The services provided and the nature of their provision required that they have the flexibility to adapt to suit the changing type of accommodation.
- › Restricted slab to slab heights on one level dictated that the services above ceiling be subject to rigorous and detailed coordination for their accommodation.



Logan Hospital

Meadowbrook, QLD

Services:

Acoustics, Communications, Electrical, Fire, Mechanical, Medical Gas, Security, Sustainability and Vertical Transportation.

About the project:

During the design phase, Logan Hospital expanded from an extension of the existing emergency department (ED) into the start of a new hospital consisting of a 5,000sqm ED floor and a 5,000sqm rehabilitation and paediatrics floor. The project is master planned to suit a future 80,000sqm hospital. Currently under construction, the hospital is due for completion in 2015.

Features and Innovations:

- › Services are designed to be energy efficient and to meet current standards and state published health guidelines.
- › To provide future flexibility for the hospital, the design of services has included expandability to suit a wide range of potential uses, including:
- › Services designed for a tall building necessitating complex fire and smoke control provisions.
- › Maintaining use of the building without shut down during the expansion process.



Beleura Private Hospital

Mornington, VIC

Services:

Electrical, Fire, Hydraulics and Mechanical.

About the project:

Beleura Private Hospital in Mornington is a 119 bed facility with three operating theatres and a vascular angiography suite. Works at Beleura Private Hospital consisted of a new staff amenities area, a new operating theatre, six new recovery beds and an upgrade of theatre support areas including CSSD.

Features and Innovations:

- › The project includes a new 25 bed oncology ward built offsite in Sydney as a modular construction for which NDY provided services design and documentation.



Ipswich Hospital Redevelopment

Ipswich, QLD

Services:

Electrical, Communications, Fire, Mechanical, Security and Vertical Transportation.

About the project:

The redevelopment of the Ipswich Hospital comprises a new four level ward building with a total of 364 beds over an approximate floor area of 33,000sqm.

Features and Innovations:

- › As part of the redevelopment the hospital was provided with a new central chiller station comprising 2 large centrifugal chillers and a low load screw chiller. All mechanical systems are controlled from a Building Management System.
- › Two new sub-stations were established on the site, and the electrical supply to the hospital was upgraded to provide two points of electrical supply.
- › Eight new lifts were provided to make a total of thirteen lifts on site.
- › A new security system was installed across the entire site, incorporating integrated CCTV, access control and security.
- › The existing PABX system was relocated and upgraded and a new structured cabling system was provided.

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