VAE GROUP

SMARTER HVAC SOLUTIONS

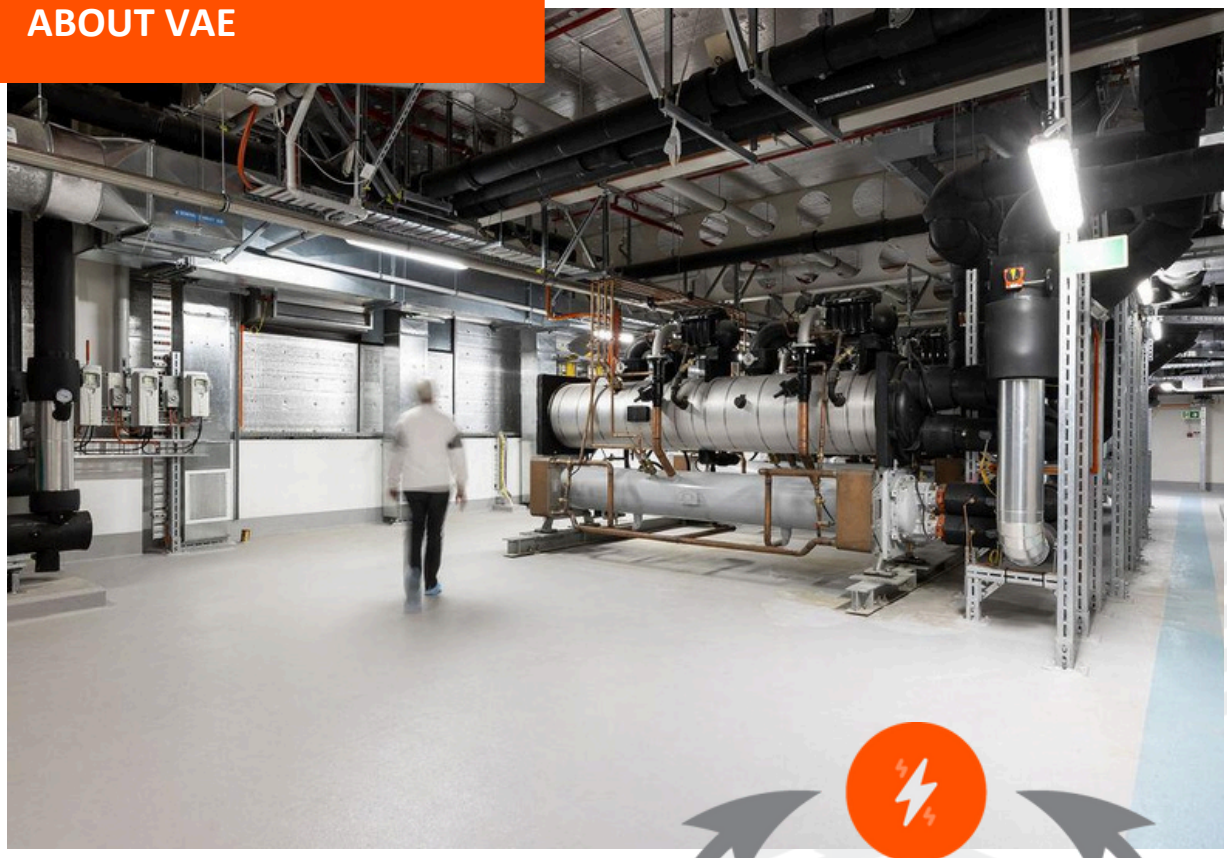
Built in certainty

VAE Capability Profile

HealthCare

January 2025

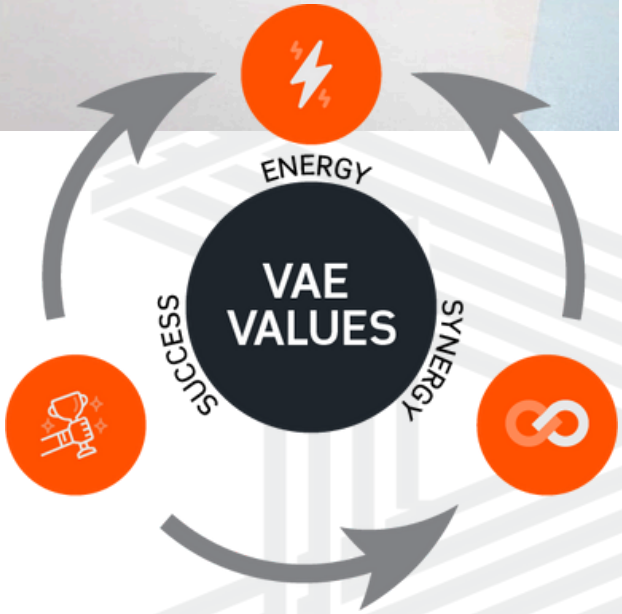
ABOUT VAE



VAE Group is a leading provider of Heating, Ventilation, Air Conditioning (HVAC), and Building Technology solutions, with a history dating back to 1997. Today, we employ over 400 professionals across 11 office locations in Australia, New Zealand, and Papua New Guinea.

As a Tier 1 building solutions company, we are committed to upholding the highest standards of trust and integrity. We collaborate closely with our clients to develop customized solutions that meet their specific project requirements. Our expert staff are driven by a genuine passion for delivering outstanding results. This energy fosters innovative thinking, promotes efficient performance, and cultivates positive relationships.

Our team is comprised of in-house project managers, mechanical design engineers, and automation engineers. We have in-house drafting, and commissioning capability, as well as full mechanical and automation maintenance servicing capability.



At VAE Group, we stand behind our promise to provide "Built in Certainty" for all clients and stakeholders. With a strong track record of delivering high-quality and innovative projects, we strive to deliver solutions that offer lasting value. VAE is committed to providing the highest level of service and delivering solutions that exceed our clients' expectations.

INNOVATION AND SAFETY

VAE Group is recognised as a leader in safety within our industry. We place the highest priority on the safety and well- being of our employees and subcontractors and take every measure to minimize their exposure to unnecessary risk. Our comprehensive approach to safety, which is a cornerstone of our company culture, is known as ...

"Safe at Work | Safe at Home | Mental Health,"

Technology

We specialize in delivering Integrated Building Platforms (IBP), which seamlessly integrate all building services into a single user interface. Our solutions improve overall communication and coordination between different building systems, resulting in greater energy efficiency, improved occupant comfort, and reduced operating costs. By providing a holistic view of building operations, we enable building owners and operators to make informed decisions and optimize the
overall performance of their buildings.

Training

We invest heavily in the training, equipment, and competencies of our employees to ensure they can identify and mitigate risks before they arise. We recognize that the safety of our employees extends beyond the workplace, and we are committed to ensuring they arrive at and return home from work safely. To this end, we place a strong emphasis on vehicle maintenance, proper licensing, and ensuring our staff are fit and capable, no matter their location.

Certification

We are committed to our safety philosophy and have implemented an accredited Occupational Health and Safety Management System that complies with ISO 45001. This system is audited by SAI Global and is integrated with our Quality Management System (ISO 9001 accredited) to ensure policy consistency and a culture of continuous improvement.

Certified System Quality ISO 9001 SAI GLOBAL

Certified System OHS ISO 45001 SAI GLOBAL

WHY PARTNER WITH US ...

24/7 DIRECT DELIVERY SERVICE

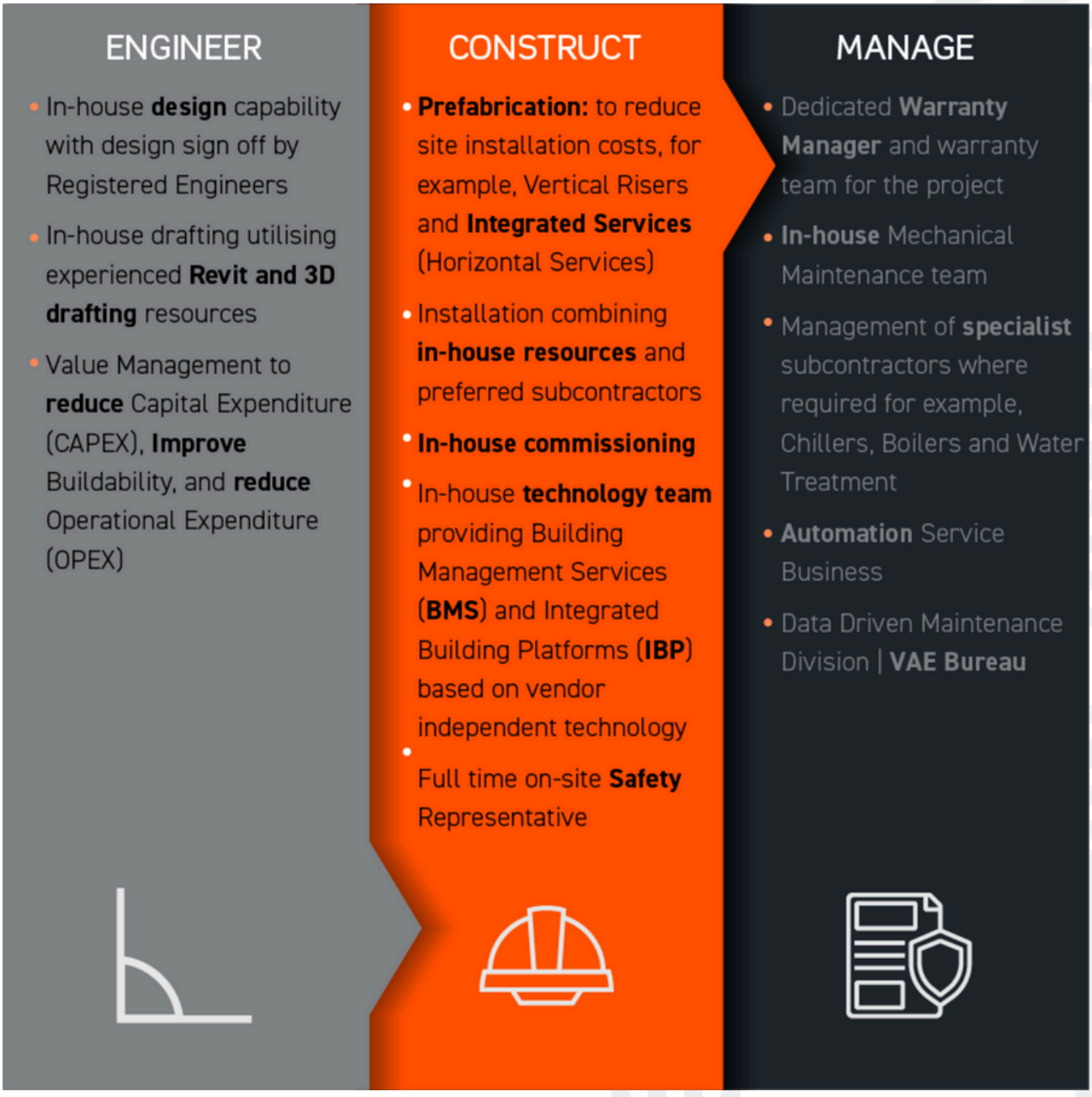
Our highly skilled technicians are available 24 hours per day, 7 days per week, and our clients are supported with a 24 hour state based Help Desk.

IN-HOUSE SERVICES DELIVERY

Having our own in-house Service Team, allows us to mitigate risk, provide service continuity and gain a unique understanding of your assets and building, creating cost savings and efficiencies during the asset life cycle.

LEAD TEAM APPROACH

All clients are supported by an appointed Client Services Manager and a Lead Team who will be responsible for your account for the duration of the contract, gaining knowledge and experience of the unique needs of the site.



TECHNOLOGY SUITE

Our technology teams works with our mechanical teams to develop solutions that work, and our expert staff have an authentic passion for delivering outstanding results. This energy drives innovative thinking, efficient performance, and positive relationships.

VAE Group are a Tridium, Niagara and Distech approved systems specialist and we also have extensive experience in upgrading and integrating legacy systems using truly open protocol platforms which allows multiple BMS providers to easily service your facility and provide a more competitive and comprehensive service level.

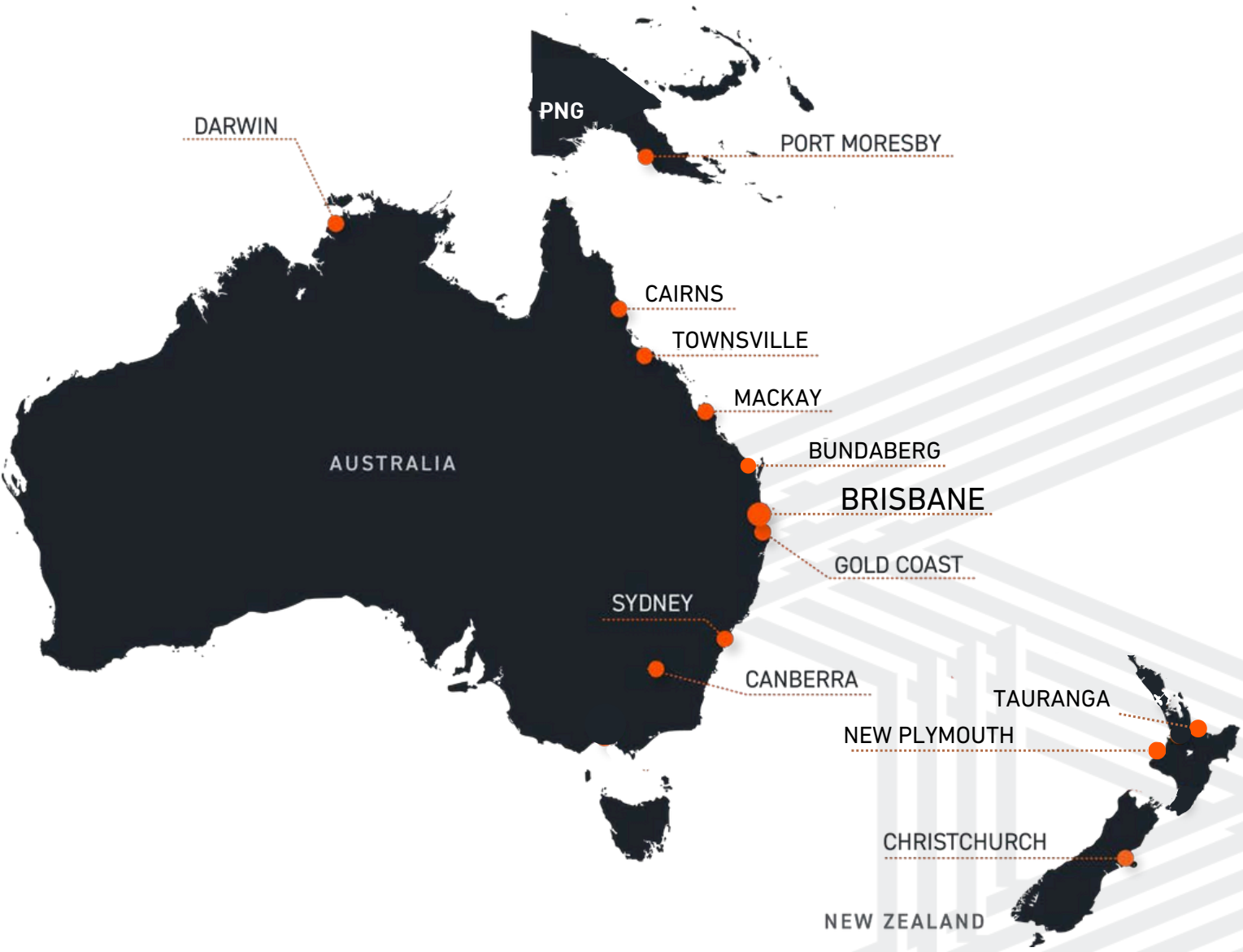
VAE Bureau
BUILDING SYSTEM PERFORMANCE

VAE Bureau is a unique product specifically created for our customers, and it is our aim to empower end users by providing them with tools and capabilities to predict energy consumption and compare performance across their portfolio. In providing this service, our clients can make informed decisions to save energy and optimise capital replacements.

VAE Bureau uses advanced data analytics to gain insights into energy consumption patterns, identify areas of inefficiency, and make data-driven decisions to reduce energy usage and associated costs. Using our comprehensive reporting and analysis, users can monitor and track their energy performance, benchmark against industry standards, and identify opportunities for improvement.

Additionally, our in-house sustainability team actively engages with clients to understand specific objectives and working collaboratively to develop strategies which align with their goals. With the information generated by our tools, the sustainability team can provide valuable recommendations, implement energy-saving initiatives, and track continuous improvement over time.

LOCATIONS



SERVICE

VAE Group provides services across Australia, throughout the Torres Strait and Papua New Guinea and in New Zealand. With over 450 staff based across 11 branches, our company has the capacity to support national and regional clients and a range of site sizes and facilities.

SECTORS

SVAE Group work across a range of sectors including:

- Commercial Buildings
- Retail
- Industrial
- Education and Universities
- Hotels and Resorts
- Health Care & Allied Services
- Aged Care
- Local and State Government.

PEOPLE

Our people are our strength and we firmly believe in developing our own in-house talent, empowering our employees to fulfill their potential. Our team are mentored, trained and respected, and we provide everyone with career and personal development opportunities.

Sydney Children's Hospital Stage One and Minderoo Children's Hospital Comprehensive Cancer Centre (JV with Austral Air)

Client: John Holland Group	Contract Value: $28M	Completion: 2025

Overview

VAE Group, in Joint Venture with Austral Air have been engaged by John Holland Group to undertake the $28m design and construction of the mechanical services on the Sydney Children's Hospital (SCH) Stage One and Minderoo Children's Comprehensive Cancer Centre (MCCCC) in Randwick.

The SCH Stage One and MCCCC is part of the Randwick Campus Redevelopment Project, which includes; a new Children's Emergency Department and Emergency short stay unit, a new Children's ICU, the Minderoo Children's Comprehensive Cancer Centre, new impatient units for five specialties, neuroscience centre, new medical shortstay unit, day oncology centre, virtual care centre and hospital command centre, paediatric pharmacy, wet and dry labs to support research, education

Scope of Works

Austral-VAE JV will carry out all mechanical services design works in-house, as well as coordination of service trades. Our scope of work includes:

- Two basement levels / eight-stories plus roof top plant
- Car park ventilation
- Chiller plant including harmonic filtration
- Laboratories complete with fume
- cupboards/exhaust
- Hazardous exhaust systems
- Isola on rooms with heap filtration
- Post disaster status

Caboolture Hospital Redevelopment Stage 2

Client: Lendlease	Value: $17.3M	Completion: 2024

Overview

The $352.9 million redevelopment of Caboolture Hospital is well underway, VAE Group are thrilled to be working with Lendlease to undertake the design and construction of the mechanical services and Building Management System (BMS). The Stage 2 scope of works for the Caboolture Hospital Redevelopment project include the delivery of the new five-storey Clinical Services Building (CSB), new Multi-Storey Carpark (MSCP) including 1,080 parking spaces, and the relocation of Building Engineering and Maintenance Services (BEMS) as well as the Central Energy Plant (CEP) into a new facility.

Scope of Works

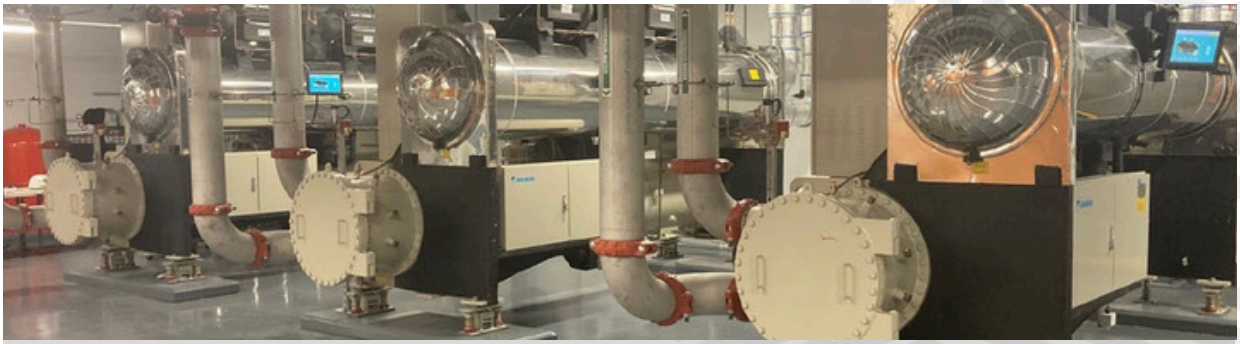
New five-storey Clinical Services Building includes:

Level 1 – new Main entry, café and visitors lounge, New expanded Emergency Department, Outdoor courtyard and Admissions, Security, and Volunteers Hub

Level 2 – 6 operating theatres, 2 Endoscopy Rooms, 16 Post Anaesthetics Care Unit Bays and 20 Planned Procedure Ward Bays, plus a 10-bed Intensive Care Unit. A Plant and equipment room is serving the lower floors and admin areas is also located on this floor

Level 3 – 14-bed Geriatric Evaluation and Management Unit, 10-bed Palliative Care unit and space for a 20-bed Rehabilitation unit. A Plant and equipment room serving the theatres and surrounding areas as well as the In-Patient Units (IPU's) is also located on this floor.

Level 4 – Cardiac Sciences Unit, 4-bed Chest Pain Assessment Unit, 8-bed Cardiac Care Unit, 16- bed Medical Ward, and 32-bed Medical Ward



Level 5 – plant and equipment to run the new building including the chilled and hot water systems, ventilation, and AHU's.

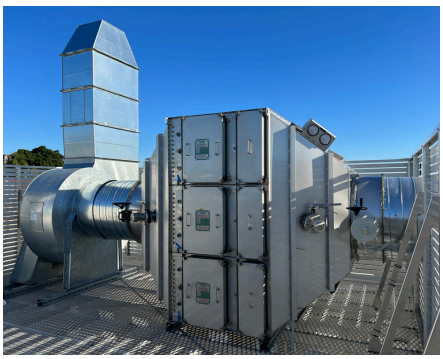
The new six floor Multi-Storey Carpark will include 1,081 parking spaces in a mix of multi-storey and at-grade facilities. It will be close to the new CBS and includes accessible parking spaces, charging stations for electric vehicles and motorcycle parking.

VAE are proud to be working with Lendlease on this essential health project for the people of Caboolture and the Moreton Bay Region.

Ipswich Hospital Negative Pressure Wards

Client: West Moreton H&H Services	Value: $8.7M	Completion: 2023

VAE were awarded the Principal Contractor role for the recent HVAC upgrade at Ipswich Hospital to include negative pressure upgrades to wards 7B, 7C and 7D, Emergency and Pod B. The project also involved the BMS upgrade for the new works along with electrical submain upgrade.



VAE provided the following improvements and additions:

- Bag In – Bag Out (BIBO), High Efficiency Particulate Absorbing (HEPA) Filtration
- Centrifugal Exhaust Fans for the ward exhaust system, achieving six air changes per hour
- Outside Air Preconditioning
- Mechanical Services Switchboard upgrades
- Building Management System (BMS) upgrade to control newly installed mechanical plant
- Extension new ductwork including Triage Exhaust Ductwork
- New roof plant deck and rooftop edge protection
- The implementation of two 300kw Boilers for preconditioned air to reduce the electrical load on the Ward Block
- Cranage and Traffic Control, to enable plant lift to the roof
- Use of abseilers to install the external spiral to ensure the pandemic exhaust ran external of building.
- Commissioning and tuning

Key Achievements:

- Enhanced Air Quality and Safety: Expert design ensures six air changes per hour for the improved infection control and negative pressure containment as required in these key wards.
- Infrastructure and Efficiency Upgrades: Key equipment upgrades & technology integration effectively delivers seamless plant control whilst reducing electrical load.
- Innovative Installation Solutions: Executed challenging installations using abseilers for external spiral ductwork and managed cranage and traffic control for safe rooftop plant positioning.
- Expanded Capacity and Safety: the introduction of a new roof plant deck with edge protection, along with optimised commissioning and tuning ensures operational efficiency and reliability.
- Effective Stakeholder Management: West Moreton HHS/Ipswich Hospital are pleased to continue collaborating with VAE Group, driven by the successful outcomes of projects to-date.

Qld Biosciences Precinct Chiller Replacement

Client: University of Queensland	Value: $1.69M	Completion: 2023

Overview

In a significant upgrade project, VAE Group was engaged by the University of Queensland to design and construct the replacement of two chillers for the Queensland Biosciences Precinct (QBP) located at the UQ St Lucia Campus. The Queensland Bioscience Precinct (QBP) is a collaborative research facility dedicated to human, animal, and plant biotechnological research. With a footprint of 35,000 square meters, the QPB comprises four large buildings, multiple research laboratories as well as conference venues and plant-growth facilities.

The Central cooling plant plays a critical role in the continuity of operations at QBP and its reliable operation is fundamentally important to the facility.

Key Requirement:

The central chilled water plant upgrade project aims to not only to improve the efficiency and reliability of the QBP cooling systems, but also to align with the Universities sustainability goals and modern technology standards.

Scope of Works

The initial stage of the project focused on the removal of existing equipment and systems associated with redundant chillers CH5 and CH3. This encompassed the demolition and safe disposal of chilled water and condenser water pumps, as well as mechanical services such as pipework and insulation.

Leveraging VAE's expertise, we designed, sourced, and installed the primary lifting gantry used to remove the existing chillers and install the new ones. To ensure future-proofing for UQ, the rig was engineered with a 7,000kg lifting capacity and equipped with twin remote-controlled electric chain blocks, each capable of handling up to 5,000kg.

With the space cleared and prepared, VAE Group moved on to the installation phase. A new chiller (CH-3) was installed and integrated into the existing system, with the intent to operate in parallel with the existing chillers, CH-1 and CH-2 (to be replaced in later stages). This parallel operation ensured uninterrupted cooling for the building while the replacement process continued.

VAE upgraded the existing Mechanical Services Switchboard (MSSB) and installed new control valves to the existing cooling towers condenser water supply and return pipework. The new chiller plant management system was seamlessly integrated with the University of Queensland's Metasys Building Management System (BMS).

Results

The successful completion of this project provides the Qld Bioscience Precinct with Certainty in the reliable operation of the central plant to support the facilities role as a world-class research facility.

Centre for National Resilience Brisbane (CNRB)

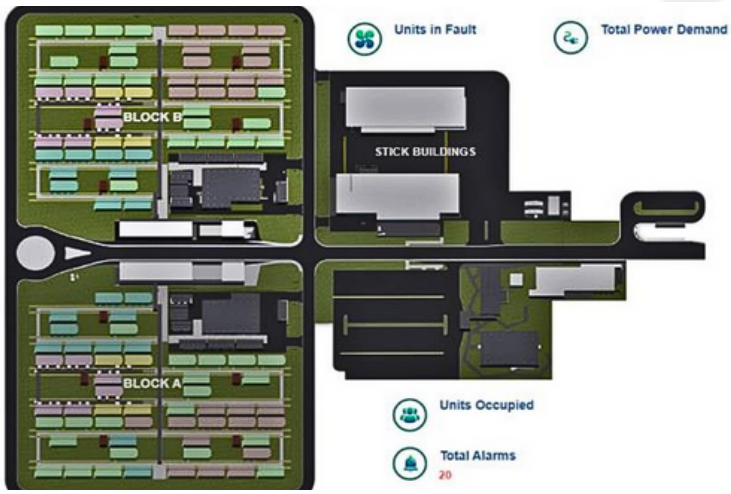
Client: Multiplex	Value: $9.9M	Completion: 2022

Overview

The Centre of National Resilience, Brisbane (CNRB) is a testament to innovation and efficiency in construction. This state-of-the-art facility comprises a diverse range of buildings, each meticulously designed and executed to serve a critical purpose in strengthening our nation's resilience during COVID.

Scope of Works

1. **Completely Offsite Constructed Modular Accommodation Buildings:** Entire air conditioning systems were manufactured offsite and transported to the site as prefabricated units. VAE undertook the intricate task of interconnecting power, Building Management Systems (BMS), and common ducts for exhaust, among other crucial components. Our team expertise extends to commissioning these systems seamlessly, ensuring optimal performance.
2. **Partially Complete Offsite Modular Accommodation Buildings:** These buildings were a 'Shell', where VAE 'joined the dots' to create a complete solution. VAE completed the final connections of duct and pipe, grilles and flex, vacuum systems, and refrigerant charging, and finally, commission the system.
3. **Main "Stick" Buildings:** The backbone of the CNRB, these 12 distinct buildings (Grey in the below pic), house critical functions such as healthcare facilities, kitchens, drop-off points, and communication hubs. In these instances, VAE adheres to traditional installation methods, ensuring that the air conditioning systems meet the highest standards of reliability and performance.



The image to the left is from the Building Management System (BMS), also completed by VAE Group, provides an idea of the scale of the project.

Redcliffe Hospital Air Handling Unit Upgrade Project

Client: Queensland Health – Metro North Hospital & Health Services	Value: $6.96M	Completion: 2021

Overview

VAE were employed by Queensland Health (QHealth) Metro North as Principal Contractor for this project.

This project consisted of major plant replacement and upgrades to the existing Redcliffe Hospital with all works carried out in a "live" operating environment.

Scope of Works

.The project consisted of multiple separable portions as follows:

- SP1 - Replacement of AHUs to serve Theatres, Sterile stores, including construction of a new plantroom and associated building works for units serving CSSD. A full system dilapidation audit was also carried out for the existing mechanicals and essential services.
- SP 2 - replacement of the electrical sub-mains to Mechanical Switchboards (MSSBs) ncluding upgrade of the Main Switchboard. Upgrade of the existing Schneider legacy I/Net system to Struxureware.
- SP3 - Replacement of Theatre AHU, including new pipework to replace asbestos insulated pipe.
- SP4 - Staged replacement of additional air handling units.
- SP8 - Modification to the building Preconditioner and heat exchangers.

Key Requirements/Challenges

Live clinical operational environment – infection control All work within the hospital was carried out in accordance with the Redcliffe Hospital Infection Control Work Guidelines including Class Ill and IV infection control measures were required.

Our works included Activity Type A (non-invasive works) through to Type D (major demolition works). VAE decanted work areas and created containment zones and provided negative HEPA filtration, including negative pressure monitoring.

Transport of construction material was done by an airtight customised trolley and container system so that construction materials would not contaminate zones. In addition, VAE constructed new plantroom outside air plenums (pathways) to contain construction dust and fume ingress.

At the completion of the works, a clinical clean was carried out which was then audited by the hospital infection control team.

Key Achievements

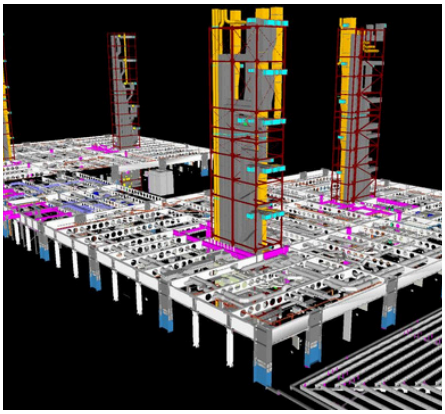
- Open, proactive collaboration with multiple stakeholders throughout the project
- Innovative construction methodology to promote infection control
- Large scale changeout of HVAC plant within a live hospital
- Minimal disruption to Hospital daily operations

The Christchurch Hospital Waipapa Building

Client: CPB Contractors	Value: NZ$54M	Completion: 2020

Overview

The rebuilding of Christchurch Hospital is the largest hospital redevelopment project undertaken by the New Zealand government. The Waipapa Building (formerly the Acute Services Building) is the largest part of the rebuild consisting of 62,000m2 of construction, including Seismic design to Importance Level 4 (IL4). The NZ$54 million building was constructed by CPB Contractors.

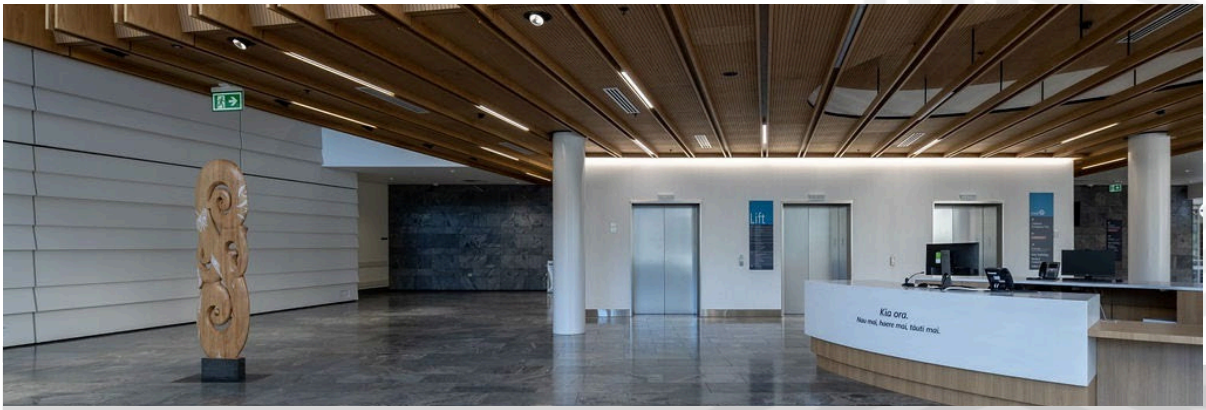


Scope of Works

The new facility comprises four podium levels & two seven storey towers: Including an emergency department, operating theatres, an intensive care unit expansion, children's facilities, radiology department and a rooftop helipad.

VAE were engaged by CPB on a construct-only basis including lead services coordination for all services. Project drafting was provided in full 3D Revit, with VAE providing Navisworks clash detection to coordinate all service trades.

VAE was also engaged to take on the coordination and drafting of the hydraulics and fire trades.



Project Highlights:

- Provision of suitable seismic restraint solution that achieved the required IL4 compliance. Noting compliance was based upon achieving a holistic building solution & not simply addressing individual packages
- Mechanical, Fire and Hydraulic drafting and engineering (Including clash detection), and implementation of
- BIM360 to provide the on-site engineering manager with real time design documentation on site via a tablet
- Full-service site Coordination of all other trades & services
- VAE utilized local Christchurch tradespeople for major components of the installation
- Prefabrication of major ductwork risers off-site, and then craned into position in complete sections; this process not only saved time on site but reduced the installation risks due to the size and complexity of the services risers.

Lismore Base Hospital Stage 3B2 - New Northern Tower Redevelopment

Client: John Holland	Value: $9M	Completion: 2019

Overview

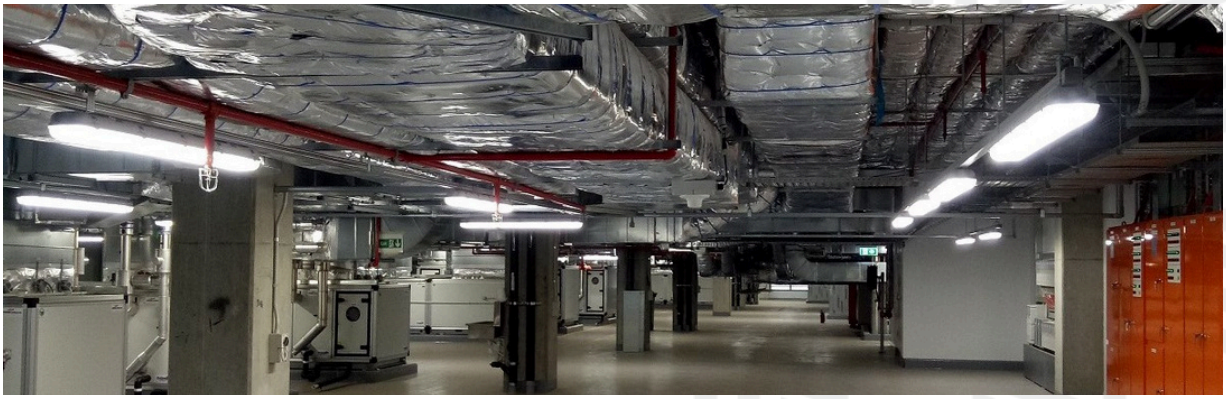
John Holland Construction awarded VAE the contract for the Lismore Base Hospital (LBH) Stage 3B2, New North Tower Redevelopment. This project is a new ten-storey tower that connects to the recently completed South Tower project (Stage3A).

Scope of Works

The project scope includes Office Space, Meeting Rooms, Operating Theatres, Special Care Nursery, Recovery Rooms, Medical Imaging, Wards, Isolation Rooms, and Intensive Care Units.

VAE were awarded the mechanical services contract by John Holland; these works were undertaken in a live hospital environment with no disruption to daily hospital operations. VAE employed local Northern NSW based site labour for mechanical duct installation and site management.

The John Holland Safety Award was received by VAE Group team members Nathan Merens, Dominic Middleton, Paige Antrobus and Geoff Sims during construction on the LBH project, for exceptional Safety practice on site.



Project Highlights

- Four VAE team members received the John Holland Safety award during construction, for outstanding Safety practice
- VAE's first female apprentice, who also identifies as Indigenous, was engaged for this project
- No disruptions to live hospital operations
- Local, Northern NSW based, site labour

VAE GROUP

SMARTER HVAC SOLUTIONS

Built in certainty

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