NDY
A TETRA TECH COMPANY

ACOUSTICS

Capability statement

‘WE PROVIDE SMART ACOUSTIC CONSULTING SO YOU CAN INVEST WISELY, ENHANCE PRODUCTIVITY AND CREATE SPACES THAT SOUND GOOD.’

Thomas Warren

Global Acoustics Leader
NDY

INTRODUCTION

With a global network of more than 60 acoustic consultants, we provide evidence-based solutions for all aspects of acoustics, noise and vibration.

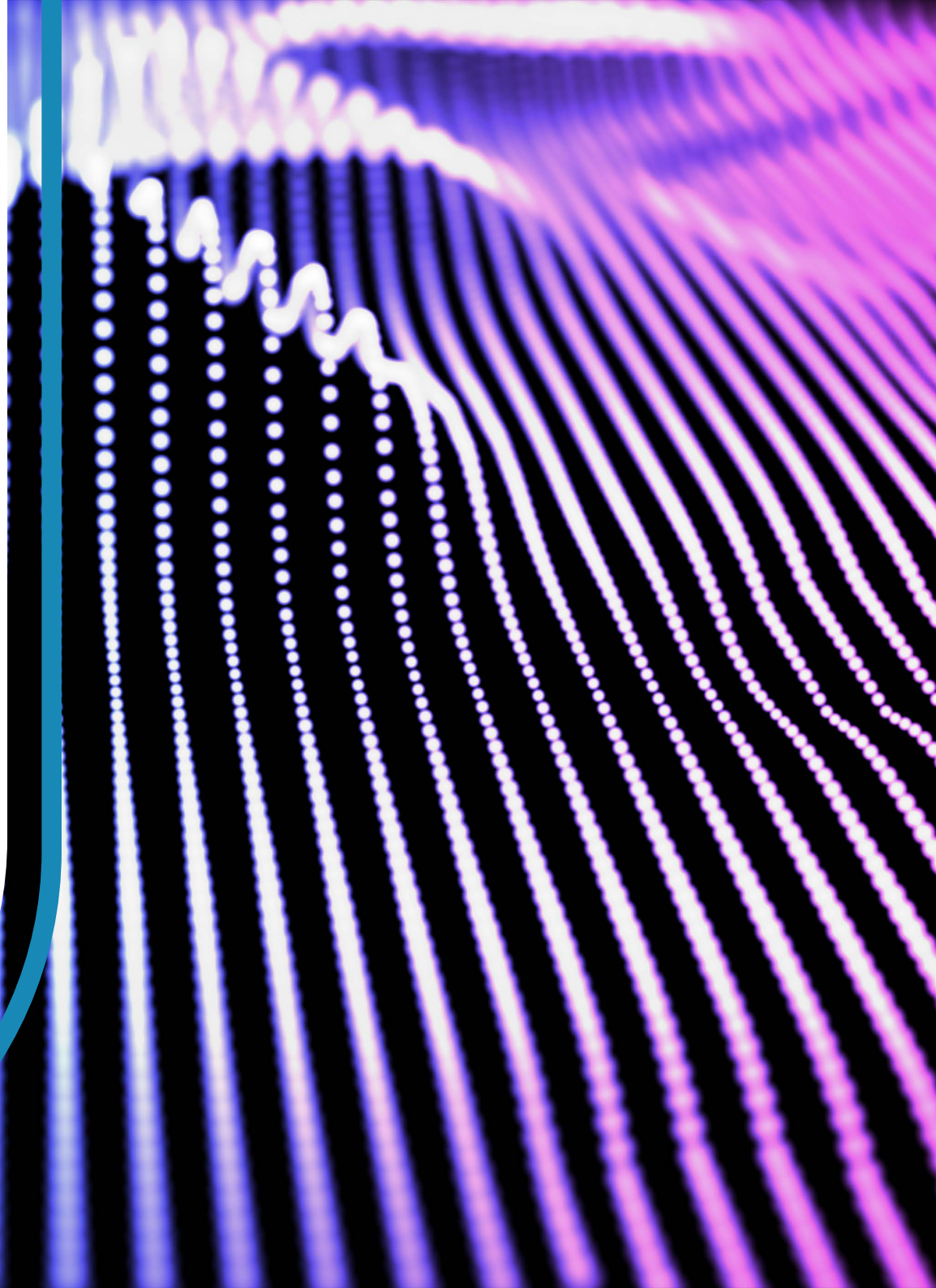
Acoustic design can improve the quality, health and safety of our environment. We do this by optimising material use and ensuring user comfort, privacy and functionality.

We begin by gaining a clear understanding of your acoustic expectations, for example privacy between offices, background noise level in an apartment or the reverberation time in an auditorium.

Our team has extensive experience across market sectors, providing acoustic design input from the earliest town planning stages through to completion and handover of buildings.

With in-depth knowledge of acoustic legislation and policy, we can provide practical, accurate and timely advice to developers and town planners.

We get involved at all stages of projects, from site selection and feasibility to town planning noise assessments, building design, certification testing and refurbishment of existing assets.



OUR SERVICES

Our team focuses on successful acoustic outcomes across all project types and stages, from town planning and statutory approvals to design, construction, building operations and upgrades.

Town planning and compliance

Achieve compliance quickly with viable acoustic solutions that help you keep your project on track.

Acoustic advice and preliminary studies are important in the early stages of a project to establish feasibility and submit noise and vibration impact assessments to local authorities.

- Noise control for compliance with national, state and local noise regulations and policies
- Road traffic, aircraft and rail noise and vibration control and modelling
- Major infrastructure planning
- Noise and vibration management plans for building demolition and construction.

New builds

Make informed decisions first time with coordinated, flexible and practical acoustic advice.

Attention to the acoustic design of facades, floor constructions and central plant for new building projects reduces risks of issues at project completion and allows for efficient systems to be coordinated by the design team.

- Noise control for building services
- Facade design to minimise external noise intrusion from road traffic, aircraft, rail and commercial noise
- Internal partition design for acoustic privacy between sensitive spaces
- Sound and impact insulation of residential intertenancy walls and floors for compliance with building code
- Plant and machinery noise and vibration control.

Asset performance

Our acoustic team relishes the challenge of working with existing buildings, whether it be solving difficult noise transfer problems or reinventing older buildings into modern spaces with sympathetic acoustic upgrades.

- Acoustic assessments of new plant equipment installed as part of decarbonisation projects, such as hot water heat pumps
- Testing and investigation of acoustic issues in existing buildings
- Design for adaptive reuse of existing buildings
- Sympathetic acoustic upgrades to heritage buildings for modern tenants.

Interiors

Modern office spaces require high levels of amenity to encourage in-office working, combined with the increasing need for spaces for online meetings. We work with office tenants across sectors such as legal, banking, consulting, tech and government to optimise the acoustics of different working zones.

- Design of high-quality office interiors for appropriate privacy levels
- Spatial acoustic design of meeting and collaboration spaces for noise control and audio-visual systems
- Acoustic design, assessments and reporting for Green Star, WELL, LEED and other environmental rating systems.

Spaces for speech and performance

Design of spatial acoustics is essential for performance spaces, auditoria and lecture theatres to provide speech intelligibility, a sense of presence and a relationship between the performer and the audience.

- Acoustic design for performance spaces including auditoria, theatres and cinemas
- Acoustic design for spaces requiring speech intelligibility and privacy, including lecture theatres and training and meeting rooms
- Acoustic design of recording and broadcasting studios
- Integration of audio-visual equipment with room spatial acoustics.

Vibration

Vibration control in buildings is important to provide a comfortable environment for occupants, protect sensitive equipment and maintain structural integrity.

- Whole-building vibration isolation to reduce structure-borne noise and vibration intrusion
- Vibration control for building services and occupant activities
- Gymnasiums
- Rail noise and vibration studies
- Vibration impacts to sensitive equipment, for example in laboratories and hospitals.

AIHEAR®

Portable auralisation software

It can be difficult to make a decision on acoustic design when all you have to make the decision are decibel numbers in a report. AiHear allows you to hear different acoustic design options and make an informed decision to best suit your project. It's portable so we can come to wherever you are; there's no need to visit a specialist acoustic space.

Community consultation

On large infrastructure projects, consultation is key. AiHear can combine simple visual simulations with accurate acoustic playback wherever stakeholders are. This can provide reassurance and allow meaningful consultation on effects and mitigations.

Product features

- Playback through headphones with 3D visuals
- Experience noise scenarios in indoor or outdoor environments
- Listen to large and small rooms with different acoustic materials, background noise and conversations
- Simulate outdoor noise sources such as road, rail, aircraft and major plant equipment
- Import 360-degree panoramic photos and videos for photo-realistic presentations
- Trace out real rooms using augmented reality and modify acoustic properties in real time
- Connect multiple devices to a single group presentation
- Laboratory-calibrated audio output through selected headphone models.

WHY CHOOSE AIHEAR®?

HEARING IS BELIEVING

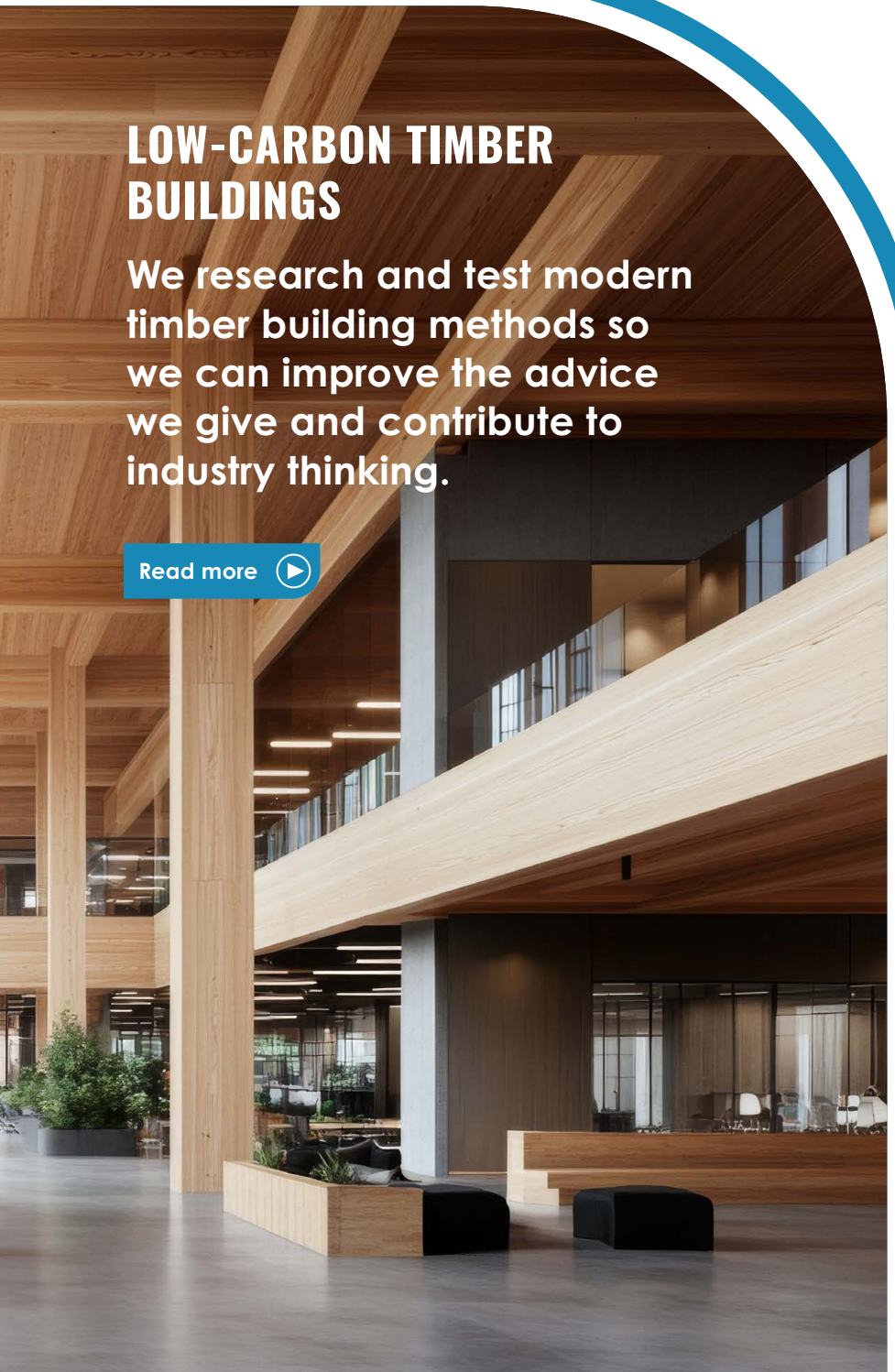
ACCURATE ACOUSTICS

CUSTOMISABLE

SMART TECH

BUILD OR IMPORT AR/VR/360 MODELS

ADJUST IN REAL TIME



LOW-CARBON TIMBER BUILDINGS

We research and test modern timber building methods so we can improve the advice we give and contribute to industry thinking.

Read more

SUSTAINABLE ACOUSTICS

How can we balance the materials and systems required for good acoustics with low carbon and low energy use?

Decarbonisation

Decarbonisation projects can be an opportunity to replace older noisy equipment with quieter alternatives, reducing noise to building occupants and neighbours. However, it can also result in new lower carbon equipment that generates more noise, such as replacing indoor gas boilers with outdoor heat pumps.

We provide town planning advice and noise modelling as well as help with option studies to minimise the acoustic impacts of decarbonisation works.

Sustainability accreditations

We design acoustic solutions which contribute to Green Star, WELL and LEED. Buildings we've successfully commissioned include The Hotel Britomart in Auckland (the first 5-star Green Star rated hotel in New Zealand), Murdoch University's Boola Katijin (Green Star) and Vancouver schools (LEED).

Sustainable products

We continually review the acoustic materials, products and accreditations we specify. By offering architects and designers a range of options, we ensure that sustainable products can be explored and whole-of-life best-for-project solutions can be adopted.

Low energy use

It's critical that we minimise the operational energy of the systems we propose. Where possible, we specify low-pressure attenuation methods in our heating, ventilation and air conditioning (HVAC) systems to minimise the operational energy required.

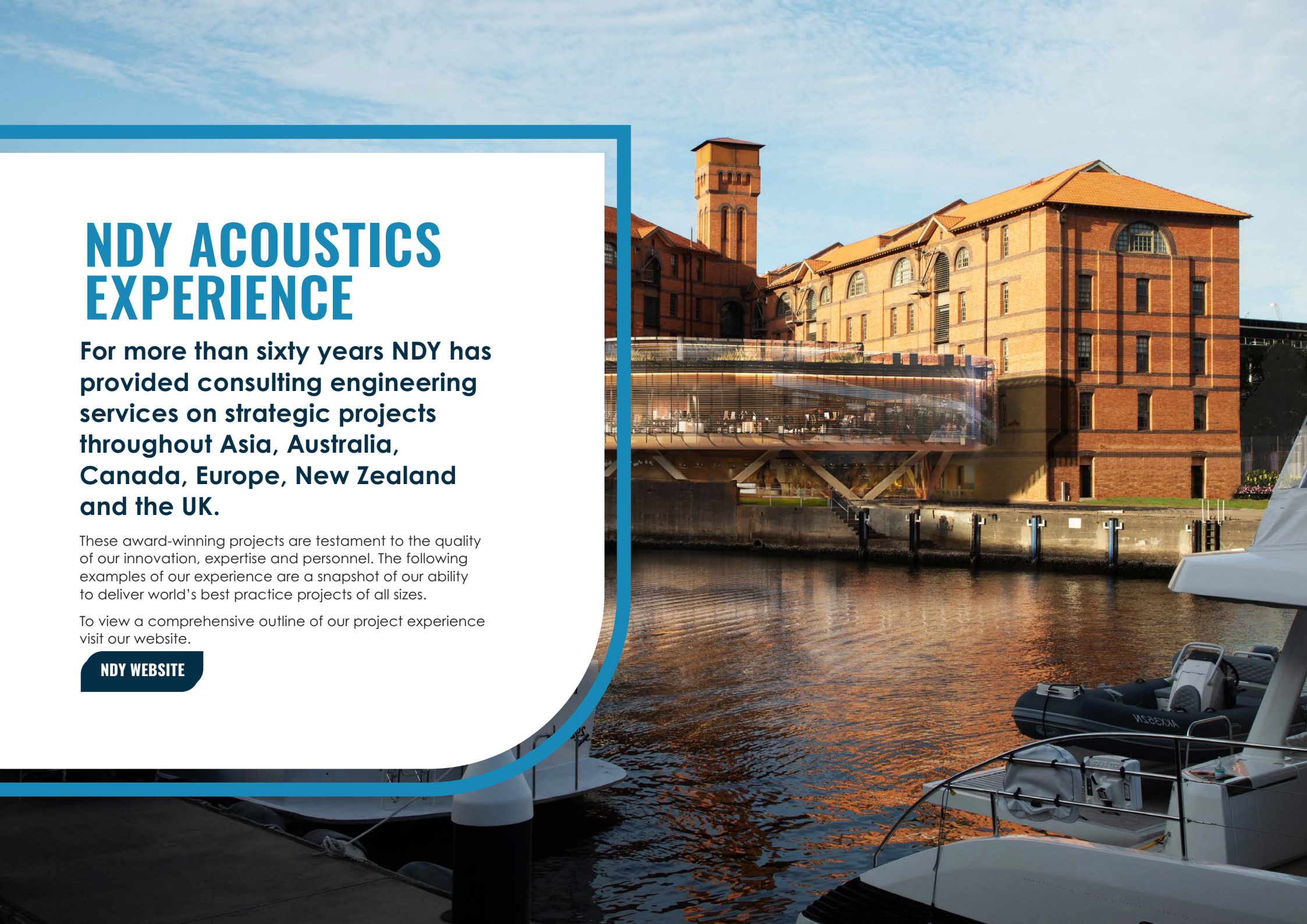
NDY ACOUSTICS EXPERIENCE

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 projects of all sizes.

To view a comprehensive outline of our project experience visit our website.

NDY WEBSITE



Health - Aged Care, New Zealand

SUMMERSET ST JOHNS

Auckland, New Zealand

Services

Acoustics, BIM, Electrical, Fire Protection, Hydraulics, Mechanical

Client: Summerset Holdings Ltd

Architect: Summerset & DGSE

Contractor: Summerset

Completion: 2025

Located in one of Auckland's most prestigious suburbs, the St. Johns Road Summerset Retirement Village Development will be Summerset's biggest development to date.

The project comprises of seven buildings, two basement-level car parks and main plant rooms divided into two main areas: independent living apartments and main hub buildings. The development will also have a fully landscaped site and green bowl area. The main hub buildings consist of a care wing and residence main area building. In the four-level care wing facility, there will be 10 memory care apartments, 31 full-care bedrooms and 64 care/serviced apartments. The seven-level residence main area building houses the main pool, main commercial kitchen, library, café and dining area, gym, cinema, entertainment lounge, bar, hair and beauty salon, spa therapy room, indoor bowling centre, laundry room, main sales office, property manager office, 17 independent living apartments and 4 penthouse apartments.

NDY collaborated with the lead architect DGSE Ltd, architect Summerset, structural engineer Holmes Consultant, ICT Torque IP, fire engineer Rapid Fire, lead contractor Summerset Construction and the landscape architect.

With help from the design team, Summerset decided to use a cloud-based model sharing and the BIMtrack software platform. This has been helpful to the project due to the weekly upload models and model clash detection following a well-planned BIM Execution Plan.

Due to the scale of the project, it required 2 separate architectural teams to deliver the client's requirements. Summerset's internal architectural team was responsible for the 5 independent living apartment buildings and the external architectural team was responsible for care wing and the main residents' building. The residents' building had communal areas for the residents including a café, swimming pool, gymnasium, library and indoor bowls green.

The development is surrounded by protected trees where strict rules have been imposed by the local regional governance. These rules have been a limitation to the acoustic boundary-to-boundary and overflow land path, which then affected the building's size and location. This challenge meant that all buildings facing Summerset St. Johns Retirement Village had to be provided with their own full central ventilation systems while the undergoing projects use a natural ventilation trickle venting system.

Transport, New Zealand

AUCKLAND AIRPORT TRANSPORT HUB

Auckland

Services

Acoustics

Client: Auckland International Airport Limited

Architect: Peddlethorp

Contractor: Icon

Completion: 2024

The Auckland Airport Transport Hub is a multi-storey transit facility that includes modern, sustainable and functional office space. The project aimed to transform the arrival and departure experience for travellers while providing a centralised home for airline tenancies.

The project built on the former International Terminal carpark to create a multi-story building with 4,000 m² of office space alongside a 2,500 space carpark. It seamlessly integrates sustainability, noise control and operational efficiency for a productive and comfortable environment.

NDY provided acoustic solutions for the base build (and is currently designing the fitout); a crucial service given the facility's location within a bustling airport environment. The challenge lay in designing an office space that would effectively mitigate the intrusive noise from aircraft and ground operations, creating a conducive working environment for the airport's staff.

To address this, NDY conducted a comprehensive facade design analysis, focusing on minimising aircraft noise intrusion through glazing construction recommendations. We also addressed noise separation between the office space and the remaining car park area, ensuring that noise from vehicles did not disrupt the office environment. Special attention was given to the atrium skylight, where heavy double glazing was selected to further reduce noise penetration from overhead aircraft and rooftop plant equipment.

Notably, the office space targeted a 5 Star Green Star rating. This required acoustic solutions that were not only effective but also aligned with stringent sustainability standards. Our recommendations included the use of eco-friendly materials and noise control measures for building services, such as internal lining for ductwork and selecting mechanical services that met required acoustic performance levels. This holistic approach ensured the project met both its acoustic and environmental goals.

As Auckland International Airport continues to expand and innovate, this state-of-the-art office space supports the airport's operational needs while setting a new benchmark for future developments.

Qantas Lounge, Perth

PERTH AIRPORT QANTAS REGIONALS AND QANTAS LOUNGE FITOUT

Perth Airport, Perth, Western Australia

Services

Acoustics, Electrical, Fire Protection, Hydraulics, ICT Consultancy, Mechanical, Security, Vertical Transportation

Completion: 2018

The Qantas Regionals project in Perth involved the refurbishment of the Perth Domestic Terminal 3, including the fitout of the new Qantas transit lounge for passengers flying direct from London to Perth.

At 14,498 kilometres, this direct flight service is one of the longest commercial routes in the world, taking advantage of the efficiency and comfort of the new 787-9 Dreamliner. Providing comfort and relaxation for passengers embarking or arriving from such a long flight greatly enhances the passenger experience.

Qantas enlisted the expertise of NDY, A Tetra Tech Company (NDY), to ensure the fitout of the Perth Qantas Lounge and the Terminal 3 extension were technically best in class and customer focused.

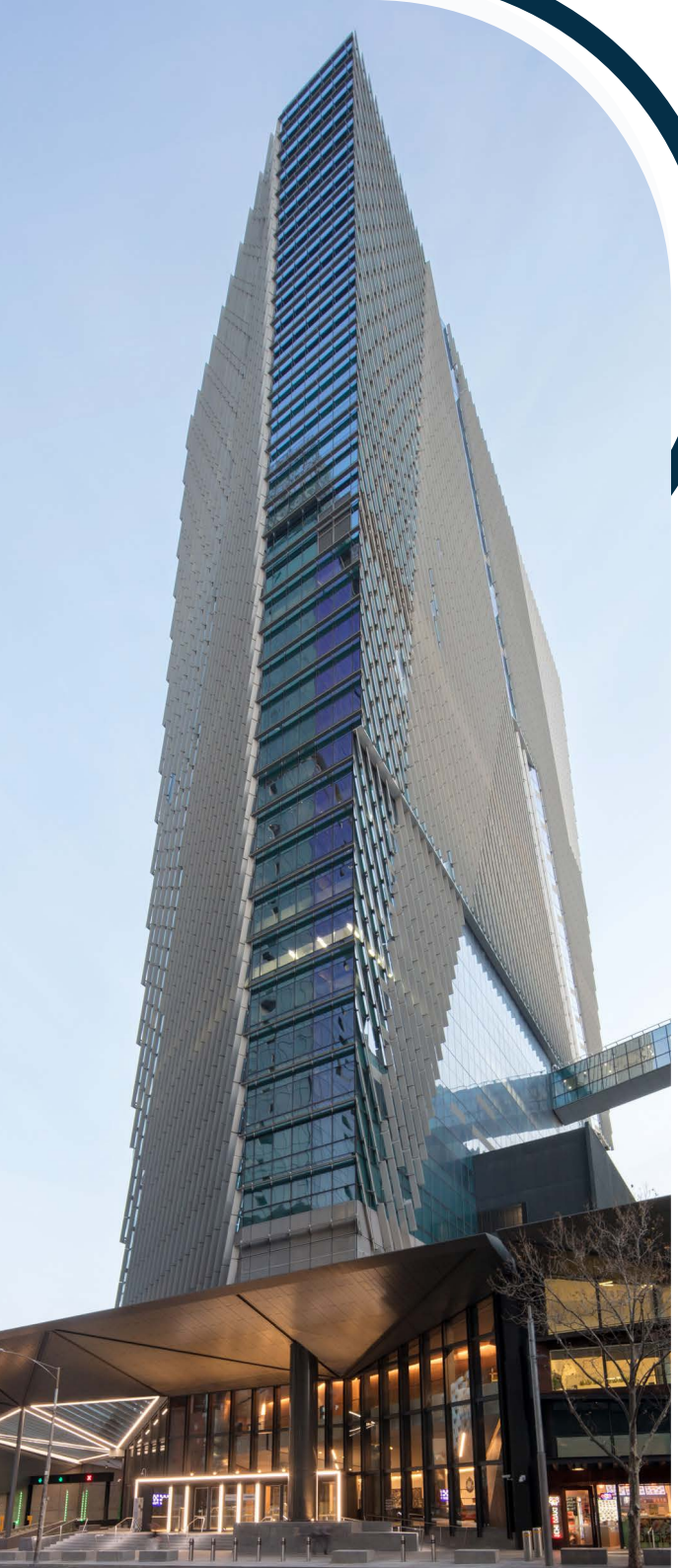
The world class transit lounge features the first outdoor patio at an airport in Australia, with a barbecue grill and a Neil Perry-designed barbecue menu.

The project consists of a reconfigured Ground and First Floor and a modest building expansion at the southern end of Terminal 3. The outcome of this work is an enhanced ability to process incoming and departing wide bodied aircraft for long haul international fights and domestic transfers/stopovers within Australia.

This involves the flexible use of available space and the use of "swing gates" for both domestic and international/transferring passengers and controlled passenger flows that are able to support the various immigration and border protection requirements.

The project's features and innovations included:

- 15 shower suites including bright LED lighting which can be run in 15 minute sessions to help re-adjust your body clock to the local time zone
- A wellness studio that offers stretching and breathing classes held every 15 minutes. This helps relax passengers before a flight, while also assisting them to adjust to a new time zone and work out any kinks once they arrive in Perth
- Two outdoor decks providing sunshine and fresh air and an authentic Perth experience after the long flight
- Outdoor BBQ with meals provided by on-site chefs
- Business facilities, including free WiFi, USB charging ports, wireless printing, personal messaging and national newspapers.



Offices, Australia

311 SPENCER STREET

Melbourne, VIC

Services

Acoustics, Fire Engineering, Fire Protection, Hydraulics, Sustainability, Vertical Transportation

Client: Cbus Property

Architect: Woods Bagot

Value: $650 m

Completion: 2020

311 Spencer Street accommodates Victoria Police alongside associated support services and other law enforcement agencies. The new building sits adjacent to the existing City West Police Complex at 313 Spencer Street, forming a new precinct that is now known as the Victoria Police Centre.

The centre comprises a 40 storey commercial office building providing approximately 65,500 m² NLA, with secure basement level car parking for 600 cars and end-of-trip facilities including bicycle storage with associated amenities. A helipad is included at rooftop level, whilst a public forecourt acts as a continuation of the external spaces and public realm with the adjacent 313 Spencer Street. The new development has also introduced numerous links and bridges to connect the two buildings.

Featuring an efficient side core design providing large open typical floor plates of approximately 2,000 m², the building contains a low, medium and high rise lift configuration which also serves the car parking levels. A goods lift is provided alongside two car park shuttle lifts.

NDY provided innovative design solutions to meet the specific requirements of various building stakeholders. This was a complex task, considering often differing requirements that required a cohesive design solution and delivery.

A high level of acoustic isolation was required throughout the building's various room types. Innovative acoustic modelling and design ensured delivery of acoustic goals during construction, whilst remaining buildable and cost effective. Substantial modelling was also undertaken for the rooftop helipad, to ensure the facade provided was sufficient to reduce noise transmission into the building.

311 Spencer Street is designed to meet PCA A Grade (2012) requirements and includes a high level of environmental credentials to target 5 Star Green Star (Design & As-Built v1.1 and Interiors v1.1), 4.5 star NABERS Energy for base building, 5 star NABERS Energy for tenancy rating, 4.5 star NABERS Water for whole building and NABERS Indoor Environment Quality for base building rating. In addition, Cbus Property has committed to run the building on 100% renewable energy from day one of operation, whereby all of the electricity load utilised will be covered by the Power Purchase Agreement (PPA) under the Melbourne Renewable Energy Project (MREP2) project.

Images by John Gollings and Lyons Architects with Silver Thomas Hanley, Officer Woods, The Fulcrum Agency and Aspect Studios.

Education, Australia

MURDOCH UNIVERSITY BOOLA KATITJIN BUILDING

Perth, WA

Services

Acoustics, Audio Visual, BIM, Bushfire Assessment, Communications, Digital, Electrical, Fire Engineering, Fire Protection, Hydraulics, Mechanical, Microclimate Study, Security, Sustainability, Vertical Transportation, Wind modeling study

Client Murdoch University

Architect Lead - Lyons Architects | Collaborating Architects – Silver Thomas Hanley, The Fulcrum Agency, Officer Woods Architects and Aspect Studios

Value $134 m

Completion 2023

NDY was engaged by Lyons Architects and Murdoch University to deliver core building and specialist engineering services designs for the Boola Katitjin Building, located adjacent to Banksia Court. This building forms an integral part of transitioning Discovery Way as the primary arrival gateway for the University.

The linear 4 storey academic building comprises a concrete structure for the lower level stories, with an innovative engineered timber frame for the upper three stories.

The primary purpose of the project is to provide the University with state-of-the-art contemporary learning spaces, to meet the needs of contemporary higher education. In addition, the project provides for extensive areas of informal, student focused, 'peer to peer' learning areas.

The building also contains a new campus wide Student Services Hub and a series of innovative 'future focused' research and industry engagement spaces. Boola Katitjin provides Murdoch University with approximately 16,000 m² of contemporary collaborative learning space, informal peer-to-peer learning, academic workplace and campus landscape. The project acts as a demonstration of the University's commitment to sustainable practices and design innovation.

Working in close conjunction with Lyons, NDY developed plant and riser spatial principles and colour mapping drawings to geographically depict various building services design solutions during the early design phases. NDY's suite of digital engineering tools has been used to develop these outputs and to carry out various early design verification and compliance checks on element such as:

- Fire hydrant and hose reel coverage compliance checks
- Communications cable lengths (with respect to chosen comms room locations)
- Distribution board demarcation zone drawings
- AV line of sight reviews
- CCTV field of vision reviews

Colour map outputs depicting:

- Mechanical Air Conditioning design philosophies
- Hydraulic wet/dry area s and temperature control requirements
- Lighting illuminance level philosophy
- Fire and Smoke compartmentation
- Acoustic wall details.

Read more

Education, Australia

ADELAIDE BOTANIC HIGH SCHOOL EXPANSION

Adelaide, SA

Services

Acoustics, Communications, Electrical, Fire Engineering, Mechanical, Security, Vertical Transportation

Client: Department for Education, South Australia

Architect: Cox Architecture

Contractor: Lendlease

Value: $89 m

Completion: 2024

The Adelaide Botanic High School expansion project aims to accommodate a growing student population while creating state-of-the-art facilities. With its innovative design and commitment to fostering a dynamic learning environment, this multi-storey vertical high school is set to become a beacon of education in Adelaide.

The project delivers a 7-storey vertical extension, spanning an impressive 8,000 m² and integrating seamlessly with existing spaces to create a cohesive and functional learning environment. The design promotes flexibility, catering to the unique learning preferences of each student, whether they thrive in group settings or prefer individual study.

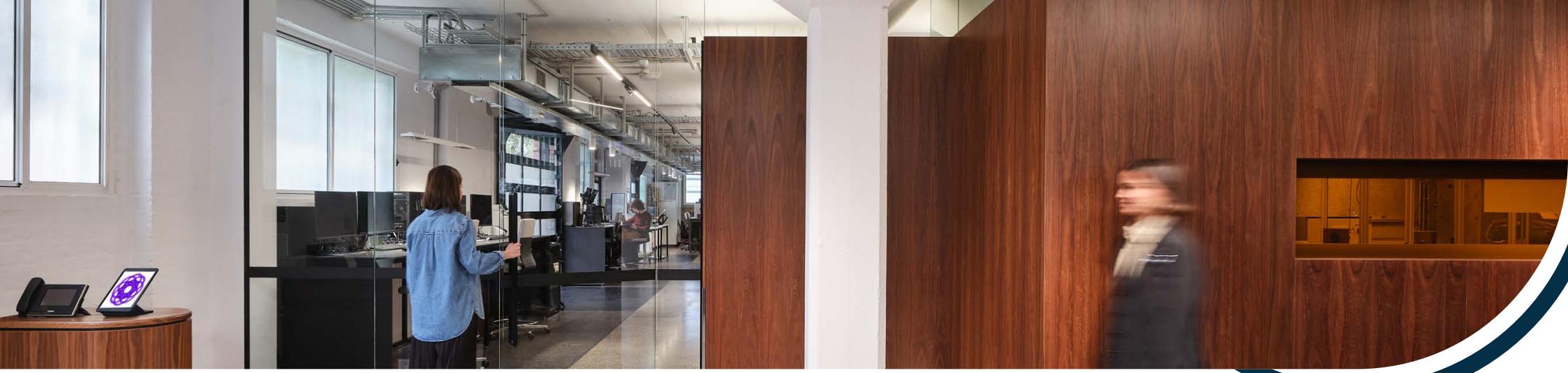
One of the standout features of the expansion is the rooftop sports area, providing students with an additional space for physical activity and recreation. The inclusion of research and study areas, an entrepreneurial hub and a performing arts facility further enrich the educational experience. Additionally, new contemporary learning areas, including food technology and music facilities, will be introduced, along with a second cafe offering indoor and outdoor eating areas.

Exposed building services offer students an inside look into the construction, functionality and performance of the building—an engaging opportunity for informal education.

Due to limited space, strict site constraints presented significant challenges for infrastructure supply to the building. However, NDY devised solutions to adapt the existing infrastructure arrangement; for example, ensuring the necessary electrical capacity without the need for a new dedicated transformer substation.

Instead of adding a new standalone electricity supply, which would have required space and impacted aesthetics, we upgraded the existing power supply and increased its capacity. We also upgraded the upstream infrastructure and created a cable pathway through the basement to deliver power across the site. This solution allowed us to avoid additional electrical infrastructure, yet still handle increased fault levels.

The philosophy of using stairs as the primary means of navigation allowed for a targeted vertical transportation design, with the lift used only by exception for people with reduced mobility or a temporary injury.



Laboratories, Australia

Q-CTRL FITOUT

Sydney, NSW

Services

Acoustics, Audio Visual, BIM, Communications, CT, Electrical, Fire Engineering, Fire Protection, Hydraulics, Mechanical, Security, Structural, Vertical Transportation

Client: Q-CTRL, Acuity

Architect: Architectus

Contractor: FDC Construction & Fitout

Value: Commercial in confidence

Completion: 2024

Image by: Alicia Taylor

Q-CTRL, a global leader in quantum technology, has established Australia's first purpose-built commercial and research facility dedicated to quantum technology. Housed in a heritage-listed industrial building in Sydney, the headquarters spans 2 levels, combining office spaces with highly specialised laboratories.

Coordinating the design for a heritage building brought unique challenges, particularly as the project involved combining 3 separate tenancies into a single space. Outdated floor plans and limited structural information made it difficult to plan and coordinate the extensive services required for the labs. To overcome this, 3D scans of the building were used to create detailed models, which revealed irregularities such as misaligned risers and the need for complex offsets to route pipework and ductwork from the ground floor to the roof. Using BIM technology allowed NDY to precisely plan and integrate services, all while respecting the heritage building.

Maintaining a stable environment in the labs is essential to Q-CTRL's quantum experiments. These processes are highly sensitive not only to temperature and humidity levels but also to how quickly those levels shift.

Rapid changes, even within an acceptable range, could disrupt the delicate experimental conditions. NDY designed the BMS and control systems to regulate temperature and humidity, keeping the rate of change steady and predictable.

The mechanical systems on level one were reviewed and found to meet capacity requirements, with no major changes needed to the variable refrigerant flow (VRF) system. On the ground floor, new systems were installed in the labs to create the precise environmental conditions required for quantum experiments. Each of the 3 labs is equipped with a dedicated fan coil unit, positioned at a distance to reduce vibrations and noise, working in tandem with acoustic treatments. Humidifiers were added to each unit to maintain stable humidity levels, while tight temperature control kept conditions within the narrow range required for sensitive equipment. These systems are supported by a new air-cooled chiller on the roof, designed to meet the demands of these specialised spaces.

Managing sound and vibration was a key focus in delivering this unique facility. On the roof, acoustic screening was installed to contain noise from the chiller and other plant equipment.

Read more

Health - Hospitals, Australia

MATER HOSPITAL SPRINGFIELD - STAGE 2

Springfield Central, QLD

Services

Acoustics, Audio Visual, Communications, Electrical, Fire Engineering, Fire Protection, Hydraulics, Mechanical, Security, Sustainability, Vertical Transportation

Client: Mater Misericordiae Limited

Architect: Peddle Thorp Architects

Contractor: John Holland

Value: Commercial in confidence

Completion: 2025

Mater Hospital Springfield Stage 2, an essential extension of the renowned Mater Private Hospital Springfield, is a direct response to the surging population growth in the Springfield region and meets demand for additional public health services.

The 9 storey, 33,700 m² facility will boast 149 public overnight and same-day beds including intensive care unit (ICU), maternity and emergency department services. It includes 6 operating theatres and a central energy facility.

A key driver for Mater Hospital Springfield is to deliver a sustainable and efficient health campus that will support high performance well into the future. Central to this ambition was the creation of a privately owned high-voltage network, paving the way for future developments and accommodating potential expansions which may include specialist clinics, day procedure clinics, retail and commercial capabilities. To expand on this approach the design includes a central energy facility, aligned with the site's master planning requirements – all consolidated within one building. This forward-thinking initiative promotes sustainability due to the increased efficiency of a larger central facility compared to multiple smaller plants, while simultaneously minimising duplication of plant equipment and therefore materials required.

As a result, it will assist the hospital in reaching its targeted 4 star Green Star Building v1 rating. It also simplifies serviceability of equipment, reducing maintenance needs and operational costs.

The project encountered a key challenge during the schematic design phase with the outset of the COVID-19 pandemic. However, by conducting a thorough analysis and drawing experience from other recent health facilities, NDY in collaboration with the Mater engineering team, Mater clinical staff and health planners developed and adopted specialist air quality and pressure regime design solutions to nominated critical areas to ensure optimum protection and safety to staff, patients and visitors. This included a complete inpatient unit (IPU) at level 8, an ICU, 2 adjoining operating theatre suites and emergency department resuscitation and fast track. These specialist systems, while integrated with the base building systems, operate independently and as required to maintain optimum energy efficiency in line with the Green Star objectives.

NDY completed the stage one design of Mater Private Hospital Springfield, which was handed over in 2015. Our previous knowledge of the building afforded us an in-depth understanding of this project and integration of the two designs.

Hotels, New Zealand

THE HOTEL BRITOMART

Auckland

Services

Acoustics, Electrical, Fire Protection, Hydraulics, Mechanical, NDYLIGHT, Sustainability

Client: Cooper and Company

Architect: Cheshire Architects

Value: $50 m

Completion: 2020

For more than 15 years, Cooper and Company has been patiently regenerating the nine-block Britomart neighbourhood in the heart of Auckland's downtown waterfront. It's a place where a blend of heritage and contemporary buildings now houses a working community of over 5,000 people and offers some of Auckland's best eating, drinking and shopping.

The Hotel Britomart was designed as a place from which to enjoy all the amenities of the Britomart neighbourhood and the city beyond. NDY delivered full building services on the development, including an industry-leading sustainability offering. Our team provided design solutions for the new build, 10 storey hotel and the accompanying transformation of the adjacent historic Buckland Masonic building, an existing site first built in the 1800s, into an office building.

New Zealand's first 5 Star Green Star-certified hotel has been designed to the highest standards of sustainability for building and construction. Working closely with Cheshire Architects and Cooper and Company, an organisation with a passion for sustainability that is in line with our own, NDY delivered the sustainability solutions that were a driving force behind the development's realisation.

After research was obtained for the certification process, findings showed more than two thirds of travellers would prefer to stay in eco-friendly accommodation. To keep the project in line with these findings, initiatives included nearly 80% of the construction and demolition waste being re-used or recycled during the two-year build, and 70% of the water used for concrete coming from recycled sources. Material selection was imperative to the success of the sustainability goals, with locally sourced sustainable timber and recycled bricks used in the build.

There were two key services considerations for NDY during the design phase: limited plant space and the placement of building services in hotel rooms. To overcome spatial problems relating to the mechanical plant, NDY sourced chillers from numerous manufacturers and found only one that would meet the building's demand and load whilst fitting into the tight plant area.

Ultimately The Hotel Britomart is a smart, contemporary location that offers a respite to its guests through luxurious and sustainable rooms while reducing the impact of climate change and enhancing health and wellbeing for guests and hotel staff alike.

Residential & Hotels, Australia

HOTEL CHADSTONE

Chadstone, VIC

Services

Acoustics, Communications, Electrical, Fire Protection, Mechanical, Security, Vertical Transportation

Client: Vicinity Centres

Architect: Bates Smart

Value: $130 m

Completion: 2019

Working alongside leading Australian architects Bates Smart, NDY was engaged by Vicinity Centres to undertake the design, documentation, tender and contract review of the new $130 million Hotel Chadstone.

Australia's largest hotel operator, AccorHotels, will manage the 250-room luxury hotel under its MGallery by Sofitel brand, helping to again elevate Chadstone as a world-class integrated lifestyle destination bringing together retail, dining, entertainment, business, tourism and now accommodation. The hotel will provide accommodation and services to complement the iconic Chadstone Shopping Centre and Tower One offices situated within the precinct.

The 12-level hotel features 250 guest suites, and boasts market-leading features, including health and wellness facilities, a day spa, gymnasium and indoor, rooftop swimming pool, plus two restaurants, lounge bar, and a ballroom. Integrating these facilities into the hotel structure proved a challenge to all services, particularly for acoustic isolation, ensuring that guests could enjoy the recreational spaces without impacting on the ambience of the hotel suites.

The communications network architecture for the building is comprised of an advanced network infrastructure, supporting the needs of guests who require a robust communications solution for business or entertainment. A key feature is the implementation of a passive optical network (PON), a fibre optic system that reduces the need for copper in the system (which has higher maintenance requirements than fibre optics), while providing a backbone to the communications system that will be compatible with current and emerging technologies.

Once certified by the Green Building Council of Australia, Hotel Chadstone will be the first 5-star Australian hotel to receive a 5 Star Green Star Design & As Built rating.

Industrial, Australia

PROJECT BLUEBIRD

Ballarat, VIC

Services

Acoustics, Hydraulics, Mechanical, Vertical Transportation

Client: BESIX Watpac

Architect: Beca

Contractor: BESIX Watpac

Value: Commercial in confidence

Completion: 2026

Project Bluebird is a cutting-edge flour manufacturing facility for MAURI, featuring a 7-storey mill, a 3-storey grain intake building and accompanying warehouse and office space. The project plays a key role in achieving MAURI's vision for a modern production site in Ballarat, focusing on safety, quality and sustainability to support the growing demand for their products.

From the schematic design phase, the project team focused on detailed coordination within the 3D model to resolve potential conflicts before any construction work began. This model integrated all services, ensuring that every component would fit within the facility's layout. Using detailed design modelling, system interactions were mapped out including precise penetrations with the architectural design. This early coordination provided clear guidance to contractors and allowed MAURI to visualise their workflows, providing confidence and helping to keep the project aligned with the construction program.

In flour mills, it's vital to maintain strict moisture control. To achieve this, the water and sanitary waste pipework was relocated outside the building's process areas and thermally insulated to maintain ambient water temperature.

In addition, we incorporated a rainwater storage system and recycled water distribution, promoting sustainability. Roof drainage is managed by eaves gutters, avoiding the use of internal downpipes and preventing rainwater from entering the process areas. We also implemented independent, precise water pressure control for sensitive items to keep equipment running smoothly during mill operation, ensuring continuous production without interruptions.

Our acoustics design focused on creating a controlled sound environment that aligns with both operational needs and regulatory standards. Through detailed assessments of noise emissions and identification of noise sensitive receivers, we incorporated acoustic treatment into the design to align with regulations and best practice. This process included analysing noise from mechanical equipment and its impact on various areas within and neighbouring the facility.

A compressed air system, designed to drive machinery throughout the mill, delivers both high performance and energy-efficiency. This system powers various equipment throughout the facility and features multiple variable speed machines to ensure smooth operation and extend the lifespan of the equipment.

Read more

Transport, New Zealand

FOODSTUFFS NORTH ISLAND HEAD OFFICE & WAREHOUSE

Auckland

Services

Acoustics

Client: Auckland International Airport Limited

Architect: Monk Mackenzie (Office) & Eclipse Architecture (Warehouse)

Contractor:Hawkins (Office) & Macrennie Construction (Warehouse)

Completion: December 2020

Foodstuffs North Island (FSNI) sought a new centralised hub to accommodate their expanding operations. Located conveniently near the airport for ease of goods delivery, this facility integrates premium head office space and a vast warehouse, streamlining logistics and enhancing operational efficiency.

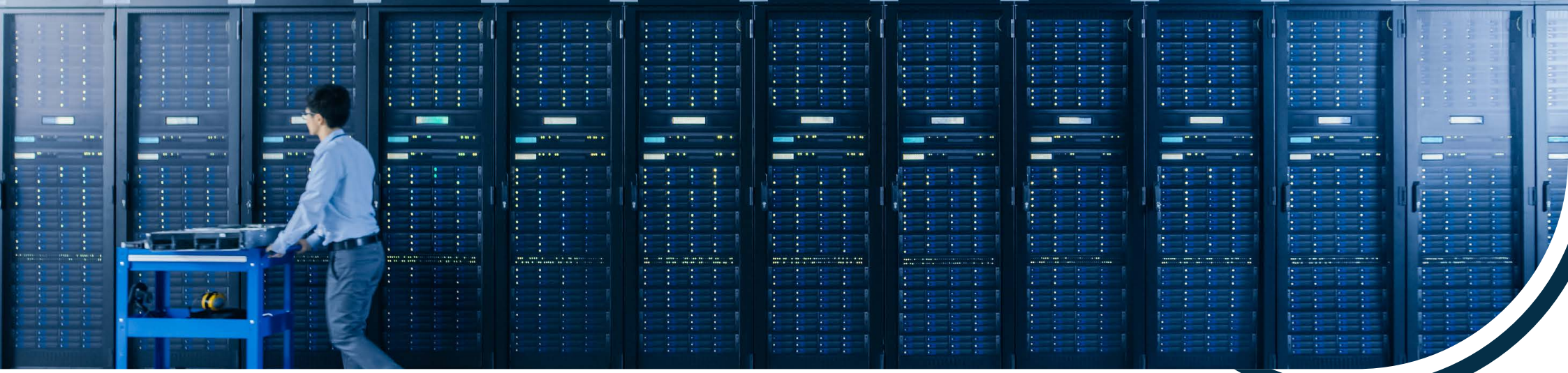
Covering a considerable site footprint in The Landings precinct, the 8,500 m² office features an impressive atrium with a large elliptical skylight, creating an inviting and open workspace for Foodstuffs' team. The 75,000 m² warehouse, critical for their distribution network, is equipped with advanced systems to ensure efficiency and flexibility.

NDY provided acoustic solutions for the base build, focusing largely on the building envelope, core walls and building services noise control. Our team also provided Green Star compliance testing, with the facility achieving 5 Star Green Star Design and 6 Star Green Star As-built ratings.

The design was implemented to address the dual challenges of aircraft noise and the constant movement of trucks in the vicinity. Solutions included the selection of sound-absorbing finishes, ceiling tiles, carpets and double-glazed facades to mitigate external noise, while careful design of entry doors facing the truck delivery routes also helped to ensure a quiet working environment inside the office.

In addition to comprehensive acoustic treatments, building services noise control was meticulously planned and executed. Our recommendations included the use of eco-friendly materials and noise control measures, such as internal lining for ductwork and selection of systems that meet required acoustic performance levels. Noise mitigation measures for the standby generator were incorporated into the warehouse facility.

The project fulfilled Foodstuffs North Island's immediate needs and positioned them for future growth, with the centralised location and integrated design streamlining their operations, enhancing efficiency and reducing logistical complexities. A landmark building, the facility sets the pace for the company's continued success well into the future.



Mission Critical, Australia

NEXTDC D1 DARWIN DATA CENTRE, STAGE 1

Darwin, NT

Services

Acoustics, BIM, Communications, ICT, Electrical, Fire Protection, Hydraulics, Mechanical, Sustainability

Client: NEXTDC

Architect: Hames Sharley

Contractor: Kapitol Group and Vertiv

Value: $40 m

Completion: 2024

The NEXTDC D1 Darwin data centre is a key component of the Darwin-Jakarta-Singapore Cable (DJSC) system, a 7,700 km network enhancing connectivity between Australia and Asia. D1 Darwin also anchors Project Horizon, a 2,000 km fibre system connecting with the DJSC and linking Darwin to Perth via Port Hedland and the Pilbara, completing the national fibre backbone between all mainland capitals. In partnership with Vocus and the Northern Territory Government, D1 Darwin aims to drive economic development and technological advancement, transforming Darwin into a major data hub by attracting data-dependent organisations.

NEXTDC's vision for the project is to maintain its renowned standards of power, security and connectivity, ensuring that this 500 m² regional data centre – much smaller than their typical facilities – meets the highest standards of reliability and performance. Despite its compact size, the facility is designed to deliver 100% uptime, secure access to major cloud platforms and rapid connectivity, all while achieving the highest level of design certification: Uptime Institute Tier IV. Post-construction, the facility will undergo rigorous testing to affirm the Tier IV rating, ensuring it meets the stringent requirements for operational resilience and reliability.

As the lead design manager, our responsibilities extend far beyond conventional engineering services. We played a pivotal role in orchestrating a seamless and efficient project delivery process that aligns with NEXTDC's standards and strategic objectives. Being the central point of coordination for all project stakeholders, our team ensured effective communication and collaboration among teams and external partners. NDY's focus was delivering a value-for-money outcome while upholding NEXTDC's quality and brand integrity, ensuring that clients receive premium service levels regardless of the facility's size.

Our design for D1 Darwin incorporates several innovative features tailored to the unique environmental and operational challenges of the Darwin region. Given the cyclone-prone nature of the area, ensuring the facility's resilience was paramount. Leveraging our experience with the PH1 facility in Port Hedland, we worked closely with structural engineers to develop robust site protection measures. These included reinforced structural elements and strategic placement of critical infrastructure to minimise potential damage from extreme weather events. This approach means that the data centre can maintain operations during and after cyclones, providing uninterrupted service to clients.

Mixed Use, New Zealand

ONE QUEEN STREET

Auckland, New Zealand

Services

Acoustics, Communications, Electrical, Fire Protection, Hydraulics, Interiors, Mechanical, Security, Sustainability and Vertical Transportation

Client: Precinct Properties New Zealand Limited

Architect: Warren and Mahoney

Contractor: Lt McGuinness

Completion: 2023

One Queen Street completes Precinct Properties' vision for a holistic Commercial Bay precinct that transcends individual buildings. This landmark project encompasses a world-class hotel experience, premium office space and exclusive retail opportunities within its revitalised walls.

Set across 21 floors and offering 139 luxury hotel rooms alongside 14,000 m² of office space, the building also boasts the highest rooftop bar in Auckland.

Delivered as the second stage of the Commercial Bay development, the One Queen Street refurbishment breathes new life into an aged structure with the addition of slab extensions and an additional level to the existing structure which was stripped back and reused.

The reuse of the existing structure presented challenges due to the discovery of unknowns during demolition and construction. However, an engaged and agile project team, along with collaborative working relationships with the construction and wider consultant team, enabled efficient problem-solving. The existing floor-to-floor height necessitated careful consideration to accommodate the desired high ceiling height for commercial floors and was achieved through collaboration and precise 3D modelling. These efforts laid the groundwork for successful execution.

The building's mechanical engineering design seamlessly integrates a mixture of four pipe and two pipe fan coil units throughout all spaces. All commercial and hotel spaces are provided with heat recovery ventilation utilising either plate or rotary wheel heat exchanges to recover energy and improve efficiency. However, the true standout feature lies in the central chilled water plant, strategically located within the Commercial Bay Tower development. This district cooling solution comprises three water chillers and two heat recovery chillers. The centralised system efficiently provides chilled water to the Commercial Bay tower, Commercial Bay retail areas and One Queen Street, creating a cohesive and future-proofed precinct.

By eliminating the need for separate chillers for each building, the design optimises space utilisation, improves energy efficiency and reduces overall operational maintenance requirements. With the redundancy of the three main chillers, the system also ensures uninterrupted service in the event of a chiller failure, safeguarding all three buildings within the precinct.

The hydraulic engineering design incorporates a thoughtful approach to domestic hot water provision, employing electric heat pumps for the commercial

Office, New Zealand

HAYMAN KRONFELD BUILDING BASE BUILD

Auckland, New Zealand

Services

Acoustics, Audio Visual, Communications, Electrical, Fire Protection, Hydraulics, Mechanical, Security, Sustainability, Vertical Transportation

Client: Cooper and Company

Architect: PTA

Contractor: Bracewell Construction

Completion: December 2022

Read more

Cooper and Company's Hayman Kronfeld Building merges two heritage listed warehouses into a single, modern mixed use development in Auckland's bustling Britomart precinct.

The goal was as simple as it was complex: restore and highlight the heritage features of the building, while integrating exposed engineering services across floors to compliment the structure.

With each building four storeys high and featuring offset floors and adjoining walls, the development includes five 1,000 m² core levels (including the basement). A bay the full width of the building within the existing post-and-beam structure was removed and replaced with a steel and glass core, which transformed the zone into a light-filled core featuring glass lifts and stairs and now also unites the two buildings.

NDY took a multi-disciplinary approach to deliver a flexible base build, enabling tenants to modify individual fitouts and ensure long term agility for Cooper and Company and their clients. Our team also delivered retail fitouts for the Daily Bread and supermarket Four Square, alongside commercial office space that includes multiple tenancies.

Three levels of Grade A office accommodation feature reuse of timber and retention of the existing timber structure, resulting in less waste and lower embedded carbon. The project is targeting a 5 Star Green Star Design and As Built NZ v1.0 rating with a broad suite of sustainability initiatives incorporated into the building's design and operation:

- Comprehensive pre-commissioning, commissioning and ongoing recommissioning of building services to ensure systems perform at their optimum. Metering and monitoring of water and energy use within the building allow the identification of any issues post-commissioning.
- Several controls are in place to improve the indoor environmental quality in the building. Carbon dioxide monitoring within the HVAC system ensures that CO2 levels do not exceed unhealthy levels. Fresh air is provided above building code minimum requirements, and low volatile organic compound (VOC) paints, adhesives and sealants have been selected to reduce pollutants.
- Air quality sensors with digital display screens are located on each floor showing the temperature, humidity, CO2, particulate matter (PM2.5, PM10) and VOC levels. These displays allow for continuous monitoring and raise awareness of indoor environmental quality with building-to-building occupants.

Offices, New Zealand

BOWEN STAGE 2 ERNST & YOUNG

Wellington

Services

Acoustics, Audio Visual, BIM, Communications, Electrical, Fire Protection, Hydraulics, Mechanical, Security

Client: Ernst & Young

Architect: Gensler

Contractor: Black Interiors

Value: $2 m

Completion: November 2022

The primary tenant of Wellington's 40 Bowen Street tower, Ernst & Young (EY), wanted a team-focused, collaborative and flexible workspace that aligned with the company's vision and workspace standards. The space needed to reflect EY's core values of teaming and inclusiveness alongside New Zealand culture.

The tenancy is located on level 2 and spans 1,600 m² floor area, with an additional co-working space on level 1 (managed by shared working space provider Generator).

As the base building services engineer, NDY leveraged its knowledge of the building to adapt systems for the specific needs of the EY team. The design team adopted a multi-disciplinary approach, focusing on integrating audio visual, lighting and acoustic elements to support the business goals. The architectural vision included open and featured ceilings, requiring customised service fittings such as sprinklers, grilles and luminaire surrounds to match the ceiling colours.

Acoustic quality was paramount. With video conferencing a daily necessity, meeting rooms received significant acoustic treatments to ensure privacy and clarity.

The kitchen area featured exposed services, which required careful acoustic design to meet both the landlord's standards for noise transfer between floors and the architect's vision.

A late addition to the project was a living plant wall. Its integration posed challenges, such as the distant placement of water supply equipment, requiring a design that didn't interfere with other services. Coordination was also needed for the grow lights to ensure they effectively supported the wall while aligning with architectural intent.

Design changes late in the build required floor redesigns, such as transforming the server room into a fire protected area, which necessitated rerouting existing services to preserve the fire rating.

With COVID-19 border restrictions stopping all travel between countries, NDY navigated trans-Tasman collaboration between our New Zealand office and the Australian-based architect, Gensler, and project manager. Managing the expectations of the EY team and project manager CBRE was crucial and achieved through meticulous coordination.

The new high-end EY workspace is built to adapt and thrive for the next 9 years, with robust engineering solutions providing flexibility and accommodating the company's shifting work policies.

Offices, New Zealand

AUCKLAND RAIL OPERATIONS CENTRE (AROC)

Auckland, New Zealand

Services

Acoustics, BIM, Communications, ICT, Electrical, BMS/Controls, Hydraulics, Mechanical, Security, Sustainability, Vertical Transportation

Client: CP Auckland LP (JV between Oyster Property Group and KKR) and KiwiRail

Architect: JCY Architects

Contractor: Macrennie Commercial Construction Limited

Value: Undisclosed

Completion: Basebuild December 2023 and Fitout March 2024

Auckland Rail Operations Centre is a transformative infrastructure project aimed at redefining Auckland's office and transport hubs. Developed as part of KiwiRail's initiative to enhance coordination and reliability in the Auckland rail network, it aligns with Oyster Property Group's vision for Central Park - one of New Zealand's leading commercial fund and property manager.

The new purpose-built development houses the Auckland Integrated Rail Management Centre, consisting of 3 levels totalling 3,393 m^2 NLA (3,566 m^2 GFA).

The new development features a variety of spaces, including:

- training and meeting rooms
- open-plan offices
- main control room
- satellite offices
- incident room

To provide fresh, healthier air for occupants, our mechanical design improved indoor air quality by exceeding standard ventilation requirements, using CO_2 monitoring to meet ISO and Green Star guidelines. Each communications room is equipped with computer room air conditioning (CRAC) units, handling 70% of the cooling load. If one fails, the other keeps the space cool, protecting critical equipment and ensuring uninterrupted operations. In addition, the level 2 control room uses 2 dedicated hybrid variable refrigerant flow (HVRF) condensers, alternating zones for balanced cooling. Should one condenser fail, the other maintains comfort in the open plan and alternating rooms. This design provides a comfortable, reliable environment for occupants, with HVRF condensers supported by a generator for continuous performance.

We implemented an electrical design with N+1 redundancy, featuring 2 x 400 kVA generators and uninterruptible power supply (UPS) banks. This setup ensures continuous operation of the AROC network during outages, both internal and external. Each generator can handle 70% of the building's load for up to 48 hours with onsite diesel, running quietly to avoid disrupting the building and the neighbouring structures. Additionally, over 1000 kg of CAT6A cabling connects the 2 communication rooms to the level 2 control space, ensuring fast and reliable data transmission. These systems provide power and connectivity, boosting the building's operational reliability and keeping services running uninterrupted.

Offices, Australia

MEDIBANK

Melbourne, VIC

Services

Acoustics, Audio Visual, Communications, Electrical, Fire Engineering, Fire Protection, Hydraulics, Mechanical, NDYLIGHT, Security

Client: Medibank

Architect: Hassell

Project Manager: Montlaur

Value: $80 m

Completion: 2014

The new headquarters for Medibank has joined the rising landscape in Docklands at 720 Bourke Street.

NDY was commissioned as the services consultant across the building's commercial office fitout. Integral to the service design was a focus on meeting Medibank's objectives for a flexible, inspiring and productive workplace.

720 Bourke features approximately 46,500s m² of A grade modern office space and central to the fitout is the incorporation of Activity Based Working (ABW) principles.

The design team worked with Medibank's requirements for a flexible workplace by designing the building services to suit a range of distinctive workspaces from open and collaborative spaces, through to quiet rooms for privacy, and social lounge areas for informal staff interaction.

The focus on sustainability is evident throughout the building and the thriving internal environment works in harmony with the buildings refreshing facade. Approximately 10 per cent of the building's facade consists of lush vertical greenery, achieved with external plantings attached to ledges around and a wire trellis system.

This soft landscaping theme is carried throughout the building and includes a communal garden.

The building design allows for an abundance of natural light, with the artificial light also designed to play a key role in workplace health and comfort. NDYLIGHT designed the lighting throughout the tenancy in collaboration with the Interior designers from Hassell and the Medibank team.

Offices & Retail, New Zealand

COMMERCIAL BAY REDEVELOPMENT

Auckland, NZ

Services

Acoustics, Electrical, Fire Protection, Hydraulics, ICT, Mechanical, Security, Vertical Transportation

Client: Precinct Properties New Zealand Limited

Architect: Warren and Mahoney in association with Woods Bagot and NH Architecture

Contractor: Fletcher Construction

Value: NZ $1 b

Completion: 2020

Commercial Bay is the regeneration of Auckland's downtown precinct that is home to world class office, retail, food and beverage facilities bringing together over 10,000 people in the heart of the Auckland waterfront.

The development consists of 18,000 m² of retail space and 39,000 m² over 39 levels of premium commercial office space. Commercial Bay links four major streets, namely Quay Street, Queen Street, Lower Albert Street and Customs Street.

NDY provided all building services design and construction monitoring for the development. The team was involved with the project from the early planning stage in 2014 from concept through to commissioning until the completion of the project in 2020. NDY worked alongside Precinct Properties, Resource Coordination Partnership (RCP), Warren and Mahoney and Fletcher Construction.

Given Precinct Properties will retain long-term ownership of the development, the Commercial Bay design required sustainability initiatives to take a triple bottom line approach, considering economic, environmental and social aspects whilst also ensuring premium amenity was maintained.

A unique aspect of the engineering services design features an energy centre that incorporates a chilled water plant, heating water plant, six-pipe heat recovery chillers and generators serving both the retail section and the tower. This engineering approach, a first for a development in New Zealand, utilises load diversification and provides energy savings particularly with the heat recovery features of the central plant.

The project has successfully benchmarked the sustainability of the design, having achieved a 5 Star Green Star Design rating, and is on track for As-Built certification. Having adopted one of the most energy efficient air-conditioning systems used to date in New Zealand, the building will provide optimal internal conditions maximising occupant comfort and wellbeing.

Retail, Australia

WESTPOINT SHOPPING CENTRE UPGRADES

Sydney, NSW

Services

Acoustics, BIM, Communications, Electrical, Fire Engineering, Fire Protection, Hydraulics, Mechanical, Security, Vertical Transportation

Client: QIC

Architect: Buchan/ARM Architects/ Seventh Wave London

Contractor: CD Group

Value: $50 m

Completion: 2023

Westpoint Shopping Centre in Blacktown underwent extensive upgrades and tenancy remix to better provide for the evolving needs of families in Sydney's West. With a strong focus on community, Westpoint aimed to create a family-friendly destination with beautiful aesthetics, transforming the dining and entertainment precinct into a vibrant space. The upgrades focused on enhancing overall customer experience and creating a comforting, sanctuary-like environment for visitors.

The upgrade work, approximately 24,000 m² across levels 2 to 4, included several key components:

Backfill of Myer (levels 2-4) approximately 12,000 m²: The Myer space was replaced with a mix of 4 international and local mini majors. A new office space of about 2,000 m² was created on level 4, along with the addition of a new gym.

Mall upgrade (levels 2-3) approximately 4,000 m²: The eastern third of the mall on levels 2 and 3 was refreshed to modernise its look and feel.

Central backfill (level 4) approximately 3,500 m²: Several tenancies on level 4 were replaced with key entertainment venues, including an arcade, bowling alley, cinema and kids' indoor play centre. Preparations were also made for a future eat street.

Public realm (level 4) approximately 4,500 m²: The outdoor rooftop area on level 4 was transformed with restaurants, a new kids' play area and improved aesthetics.

We seamlessly integrated the new services into the mall's existing infrastructure, overcoming space constraints and coordinating with fire safety measures. It was essential to conceal services such as sprinklers, air diffusers, smoke detectors and smoke exhaust fans, along with the noise they produce. This ensured they blended perfectly with the mall's architectural vision, including the polished concrete aesthetic, while maintaining a pleasant user experience.

We achieved this seamless integration by using the bulkhead detail. At the change in ceiling height, we discreetly incorporated essential services so that they remain out of sight while balancing functionality and aesthetics.

The pipework reticulation was carefully coordinated with the design, operation and construction teams. This approach minimised the need to remove ceiling panels on the level below to access the pipework, reducing interruptions to the shopping centre and its businesses.

Civic - Sports & Entertainment, Australia

ALKIMOS AQUATIC AND RECREATION CENTRE

Alkimos, WA

Services

Acoustics, Fire Engineering, Fire Protection, Hydraulics, Mechanical, Sustainability

Client: Donovan Payne Architects, City of Wanneroo

Architect: Donovan Payne Architects

Value: $82.9 m

Completion: 2026

Read more

The Alkimos Aquatic and Recreation Centre (AARC) is set to transform Perth's northern coastal suburbs, enhancing both social and economic dynamics. Strategically situated on a 35,000 m2 site, it is designed to address growing demand and offer enhanced accessibility for residents, particularly with proximity to upcoming METRONET Alkimos train and bus stations and via the Mitchell Freeway extension.

The AARC project will feature indoor and outdoor swimming pools, gym and fitness facilities, sports courts, a crèche, café, change rooms and a carpark. It is designed to cater to people of all ages and abilities.

Key sustainability initiatives for the project support a focus on AARC's upfront carbon emissions, which will be reduced by utilising low-carbon architectural and structural materials (where feasible). The building's key feature is 100% electrification, meaning no fossil fuels will be used onsite. Heat pumps will be used for heating and cooling and it is powered by onsite renewable energy, with space allocation and ongoing feasibility studies into using geothermal energy for pool heating. Water savings are being implemented through backwash technology and water fixture selection.

Our hydraulic team's design supports sustainability goals by incorporating a heat pump based domestic hot water plant, consisting of 8,000 litres of storage. This innovative system offers a greener alternative to traditional gas-fired boilers. It is particularly advantageous for facilities such as AARC that need to meet high domestic hot water peak demand, delivering a consistent supply while minimising the site's ecological footprint.

NDY's fire engineering strategy contributes significantly to the project, providing fire engineered performance solutions which have been instrumental in optimising the design of the indoor sports court and aquatic centre to allow for a larger compartment area and volume. This not only improves the constructability of these spaces but also ensures that safety and regulatory compliance are maintained without compromising on the architectural vision. The design solutions enable a more efficient use of space while upholding the highest standards of fire safety.

Our fire protection design included installation of a fire booster assembly equipped with a Storz connection to augment water pressure for firefighting within the building.

Civic - Sports & Entertainment, Australia

SOUTH AUSTRALIAN SPORTS INSTITUTE (SASI)

Adelaide, SA

Services

Acoustics, BIM, Communications, Electrical, Fire Engineering, Fire Protection,Hydraulics, Mechanical, Security, Vertical Transportation

Client: Department for Infrastructure and Transport

Lead Agency: Office for Recreation, Sport and Racing & University of South Australia

Architect: Cox Architecture

Contractor: Hansen Yuncken

Value: $86 m

Completion: 2024

Read more

The South Australian Sports Institute (SASI) is a specialist sport, research and education facility, marking the first of its kind in South Australia. Driven by the need for a purpose built facility that aligns with their vision and needs, SASI sought a custom solution in collaboration with the University of South Australia (UniSA), co-locating with the Office for Recreation, Sport and Racing (ORSR) at the Mile End Sports Precinct.

With the existing site also housing the SA Athletics Stadium, the Australian Centre for Sports Aerodynamics (NCSA) wind tunnel and beach volleyball facilities, the co-location introduces new opportunities for synergy and growth, fostering collaboration and providing opportunities for programs that utilise multiple facilities. The integration enhances overall functionality and accessibility, leading to more comprehensive training and development opportunities alongside enhanced research capabilities.

As lead building services consultant, NDY is coordinating the services provisions between multiple projects on the site. Our role involves marshalling these projects together and delivering a services master plan that ensures a cohesive approach to infrastructure. For example, we've taken a unified approach for electrical services. Rather than handling each project individually, our team has gathered the necessary information to approach provider SA Power Networks with a combined strategy, dealing with them directly to meet the requirements of each project on a precinct basis.

This unified approach extends to other areas, such as fire safety, where we're collaborating with other consultants to design the necessary infrastructure. This benefits all projects within the precinct, ensuring a streamlined and efficient process that aligns with the overall vision for the site.

The new SASI facility spans three levels and 8,000 m². The ground floor incorporates a court space, movement studio, strength and conditioning gym, amenities and a recovery centre. Level 1 is designed to house office space, therapy suites, physio and medical suites and other high performance training facilities including an ergo room for exercise bike training. Level 2 is designated to UniSA for their Sport's Science Hub, part of the Allied Health and Human Performance Academic Unit and a place for teaching and research.

Supported by specialist mechanical engineering, a state-of-the-art environmental chamber incorporates temperature and humidity control and hypoxic conditions. Critical to the facility, these precision laboratory spaces require exact temperature and humidity control, along with the integration of a highly specialised hypoxic plant for simulation of altitude and extreme environmental factors.

Transport - Rail, Australia

SYDNEY METRO – CROWS NEST STATION

Crows Nest, Sydney, New South Wales

Services

Acoustics, Communications, Fire Engineering, Fire Protection, Hydraulics, Mechanical, Security, Sustainability

Client: SMEC Australia

Architect: Woods Bagot

Contractor: A W Edwards

Value: $370 m (station only)

Completion: 2024

Read more

As part of the Crows Nest Design Consortium (CNDC), NDY is responsible for the design stage delivery of the MEP services (including cable containment coordination) for this project. Together with SMEC (design lead, civil, environmental, electrical, systems engineering), Woods Bagot (architecture) and Robert Bird Group (structures), NDY developed the Stage 2 (70%) and Stage 3 (100%) design packages for this project and are also heavily involved in the construction phase services.

Crows Nest Station is a new eight-level (six underground) station located on Pacific Highway between Oxley Street and Hume Street, constructed as part of the Sydney Metro City & Southwest project. This area is a growing commercial and residential precinct in close proximity to the village centre of Willoughby Road and close to the centre of St Leonards.

The project is delivering:

- underground station connecting the Metro North West Line to new Sydney Metro stations in the Sydney CBD
- new pedestrian crossing with traffic lights at the Pacific Highway/Oxley Street intersection
- new pedestrian crossings on Clarke and Hume Streets
- new bike parking on Hume Street
- new kiss-and-ride and taxi bays on Clarke Street
- existing bus stops close to the station retained and relocated on the Pacific Highway.

In addition to the station design, the CNDC team is collaborating with Sydney Metro on the planning of the proposed over site developments and planning the infrastructure and connections for the implementation of these future buildings. NDY has also completed the detailed design of the services for the over station development at Site C, which is a nine-storey, 3,100 m² commercial building, with a ground floor lobby, end of trip facilities and bicycle parking on Level 1, office space on Levels 2 to 8, and an accessible landscaped terrace on Level 9.

CNDC (NDY) was charged with the responsibility of coordinating the spatial requirements and interfaces for the system-wide contactors' scopes throughout the station, including the Line Wide contractor (tunnel ventilation systems, tunnel drainage, tunnel overhead wiring, tunnels and track ways, and high voltage electrical systems), and the Trains, Systems, Operations and Maintenance (TSOM) contractors (signaling, communications, central control systems, platforms screen doors, radio systems).

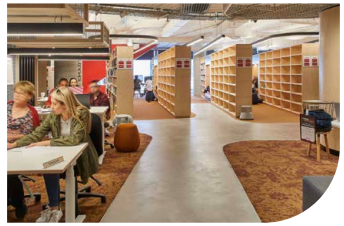
OUR MARKETS

We design spaces that perform the way you need them to – spaces fit for your future. Whatever the size or complexity of your project, our global team of trusted advisors engineer integrated and sustainable solutions.

AGED CARE

CORRECTIONS & JUSTICE

DEFENCE



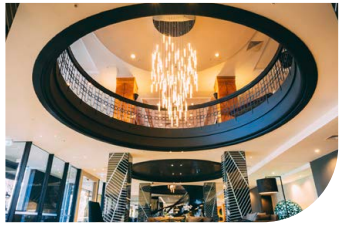
EDUCATION

HEALTH & SCIENCES

INDUSTRIAL

MISSION CRITICAL

OFFICES



RESIDENTIAL, HOTELS
& MIXED-USE

RETAIL

SPORTS, ENTERTAINMENT
& PUBLIC BUILDINGS

TRANSPORT

OUR SERVICES

Our project teams include technical specialists who span disciplines but share the same project goals, values and vision.

Acoustics

Asset Performance

Audio Visual

BIM Building Information Modelling

Commissioning Management

Communications (ICT) Consultancy

Controls & Integration

Electrical

Fire Engineering

Fire Protection

Hydraulics

Interiors

Mechanical

NDYLIGHT

Property Consultancy

Security

Smart Buildings

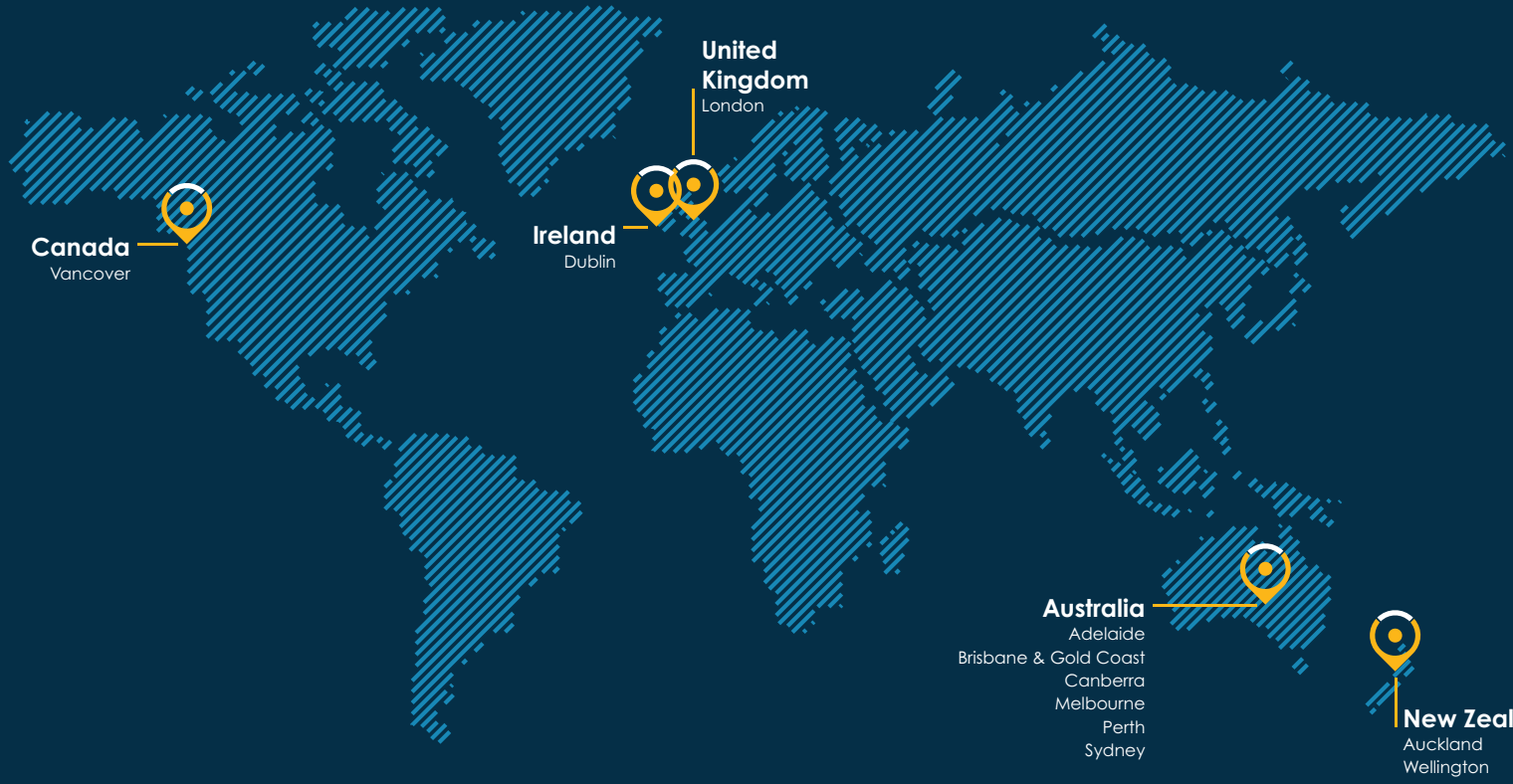
Structural & Civil

Sustainability

Vertical Transport

NDY AT A GLANCE

We tap into a well-resourced network of technical specialists and consulting engineers from around the world to bring you the best project team.



MAKING SPACES WORK

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