



Norman
Disney &
Young

A TETRA TECH COMPANY

Office

Capability Statement

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**NDY by
numbers**

established
1959

600+
people

9
key markets

12
offices

5
countries

Introduction

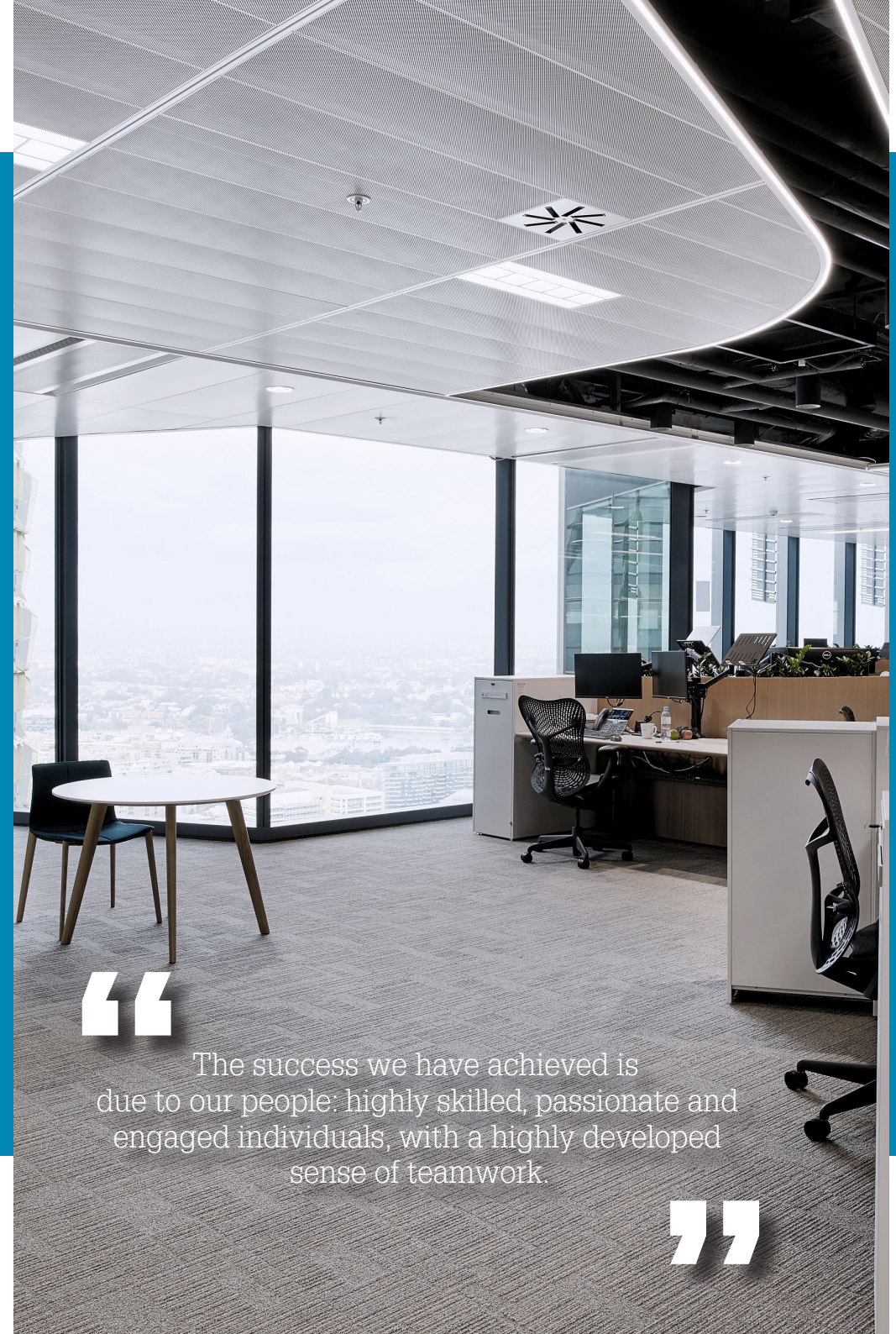
From large office towers to single storey office complexes, Norman Disney & Young (NDY) can provide a full suite of services for new commercial developments.

Our experience in servicing office towers stretches back many years. Our work on Gold Fields House in 1966, the first high rise office tower in Sydney, laid the ground work for our specialisation in providing buildings services engineering to the commercial sector.

We continue to service major office projects across Asia, Australia, Canada, Europe, New Zealand and the UK. In today's office towers, energy efficiency is paramount and clients require considered and cost-effective designs that improve occupancy comfort and their bottom line.

Estimates suggest that buildings are responsible for up to 80% of our carbon emissions in major cities and as such, the office market has a major role to play. As the carbon footprint of the built environment increases so does the cost to businesses, making energy efficiency about more than the environment.

NDY is well-equipped to help clients make their offices more efficient and reduce business costs associated with energy consumption.



“

The success we have achieved is due to our people: highly skilled, passionate and engaged individuals, with a highly developed sense of teamwork.

”

Our **values**

Excellence

Do it once, do it well

Leadership

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

Integrity

Treat others as we wish to be treated

Collaboration

Listen, share and contribute

Accountability & Ownership

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

Innovation

Inspired creativity to challenge the norm

Our purpose
is making
spaces work

Our **vision**

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

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

and

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

Our ethical statement

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



What **we** do

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

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

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

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

Our markets

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

Our services

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

Our office **capabilities**

From small scale developments to major new build schemes, NDY provides a full range of complimentary services to deliver a product that meets and exceeds modern office demands.

Our recent work in this space has achieved industry recognition through the awards that our schemes have secured. But more importantly, these spaces have met our clients' specific requirements. In other scenarios, they have attracted potential tenants, resulting in substantial pre-lets or occupier interest soon after completion.

As consulting engineers, we are focused on providing building services designs that add value, either through the efficient use of space, or the functionality technology and comfort offered to the occupier. Working closely with the architects, we arrive at engineering solutions that optimise the aesthetic of the space without compromising operational requirements.

NDY promotes a proactive and responsive culture. Our staff take a focused approach that encompasses speed of response, flexibility, and mobility of resources.

We offer collaboration through consulting, not just an end product. During the briefing stage, we assist you by understanding and establishing your needs, and guiding you to make effective decisions.

Throughout the project, we will collaborate and assist you in monitoring key issues, cost and mitigation of risk. We understand that office design is a combination of many inputs and we consider these with equal measure.

Workspace design and workplace ergonomics have reached a watershed moment. Our society is moving fast and so is our population. As the boundaries between corporate and private lives become increasingly blurred, new and innovative approaches to accommodate such changes are required.

Our approach to office design embraces this exciting challenge. Because your projects are important to us, dedication and ownership are part of our make-up. All of our team have a keen interest and passion for all facets of office design, architecture, business design and workplace strategy.



BHP Billiton Fitout 125 St Georges Tce, Perth



NAB, 700 Bourke St, Melbourne

Sustainable **offices**

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

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

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

With buildings responsible for up to 80 per cent of carbon emissions in our major cities, the office market has a major role to play in minimising our environmental footprint. NDY is committed to delivering new offices that are efficient, cost-effective and environmentally-sustainable.

Our deep understanding of energy efficiency has delivered some world leadership outcomes in green office projects – from high rise towers to single-storey office complexes.

We create high-quality indoor environments that improve productivity, health and wellbeing of building occupants.

We've worked on some of the most iconic new green office projects, including more than 60 Green Star offices in Australia, along with a growing number of Green Star projects in New Zealand and BREEAM-rated projects in the UK. NDY has championed the Green Star rating system for many years, and more than 20 NDY specialists are registered Green Star Accredited Professionals.

In 2014, NDY was a finalist in the World Green Building Council's Asia Pacific Green Building Awards for our commitment to embed sustainability into our business operations, services to clients, and the delivery of projects.

We work with our clients to find design solutions that focus on resource efficiency and environmental management, and we are committed to minimising our own ecological footprint too.



Photo: 4 National Circuit, ACT

NDY office experience

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

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

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

READ MORE





Mixed Use Australia

International Towers Sydney Barangaroo, Sydney, NSW

Services:

- › BIM model management
- › BMCS
- › Communications
- › Electrical
- › Energy monitoring
- › Mechanical
- › Security
- › Sustainability/ESD

About the project:

Rarely does a project the size and significance of Barangaroo arise on the Australian construction landscape. The mixed waterfront development, nestled in the CBD on Sydney Harbour, brings together a new public headland park and a flourishing community, residential and commercial precinct covering a vacant 22 hectare industrial site.

Sustainability and energy efficiency are key objectives for Lend Lease, the developer and the design and construct project manager, and underpin NDY's appointment to the site's three high rise commercial towers. 6 star Green Star Office Design and As Built (v3) and NABERS 5 star plus ratings are being targeted as a minimum.

Features and Innovations:

- › A full fresh air ventilation system serving the chilled beam systems with heat recovery from the relief air
- › High turn down chilled beams and the use of a side blow chilled beam to serve void areas
- › The use of a 3D fully coordinated model during the design phase for all three towers
- › BMCS control strategies which incorporate "voting principles" as part of a Trim and Respond optimisation strategy
- › Documentation of an Energy Monitoring System as a separate stand alone package
- › Integration of all communication networks (BMCS, EMS, Security, etc) over a site wide Integrated Communications Network (ICN).

“

Known as 'Sydney's \$6 billion Barangaroo South urban regeneration project,' each building with which NDY is involved has a construction value of about \$500 million.

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WATCH NOW



Watch our video documentary on NDYTV
https://www.youtube.com/watch?v=S1s_gvve4i4&t=



Mid Rise Office Australia



Watch our video documentary on NAB on NDYTV: <http://bit.ly/NDYTV-NAB>

National Australia Bank (NAB) 700 Bourke Street Melbourne, VIC

Services:

- › Architectural Lighting (NDYLIGHT)
- › Electrical
- › Fire
- › Hydraulics
- › Mechanical
- › Sustainability
- › Vertical Transportation

About the project:

Positioned between the bustling Southern Cross Station and Etihad Stadium in Melbourne's Docklands, 700 Bourke Street is home to 6,000 NAB employees. At over 65,000 sq m, the development consists of a new 14 storey premium grade office with retail, beverage and food tenancies.

The building has been purposefully designed to be recognised as a 'world leader' in green building design and construction by achieving a 6 Star Green Star rating for Design and targeting a 6 Star Green Star rating for As Built. As the sustainability consultant for 700 Bourke Street, NDY implemented a range of sustainability initiatives including conducting air conditioning options, extensive daylight modelling, energy modelling, facade reviews, lighting studies and water consumption analysis.

Features and Innovations:

- › Australia's largest passive chilled beam installation
- › Sophisticated lighting control system with premium efficiency lighting solution
- › Maximum use of natural lighting through optimised façades
- › Water conservation with the use of the black water treatment plant and stormwater reuse, as well as water efficient fittings and fixtures
- › Provision for smaller sized car spaces and motorcycles, encouraging use of lower carbon emission vehicles
- › 700 sq m roof top garden for NAB use
- › Very low energy building incorporating solar controlled facade design, heat recovery, passive cooling and heating and solar hot water trigeneration plant
- › A holistic fire safety solution developed by the NDY fire engineering team.

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The building has been purposefully designed to be recognised as a 'world leader' in green building design and construction...

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Office, Australia

12 Creek St Annex, Brisbane, Queensland

Services

- › Communications
- › Electrical
- › Fire Protection
- › Hydraulics
- › Mechanical
- › Security
- › Sustainability

About the project

One of Australia's prominent real estate groups, Dexus, led the development of a new office tower, The Annex, at 12 Creek Street in Brisbane. Dexus manages a superb Australian property portfolio valued at \$31.8 billion, investing only in Australia and directly owning \$15.6 billion of office and industrial properties. This project was designed to meet PCA Grade-A, 4.5 Star NABERS Energy, 4 Star NABERS water and 4 Star Green Star building standards. The Annex is a 12-floor commercial building that is home to offices spaces, retail tenancies and an exclusive landscaped terrace overlooking the Brisbane River.

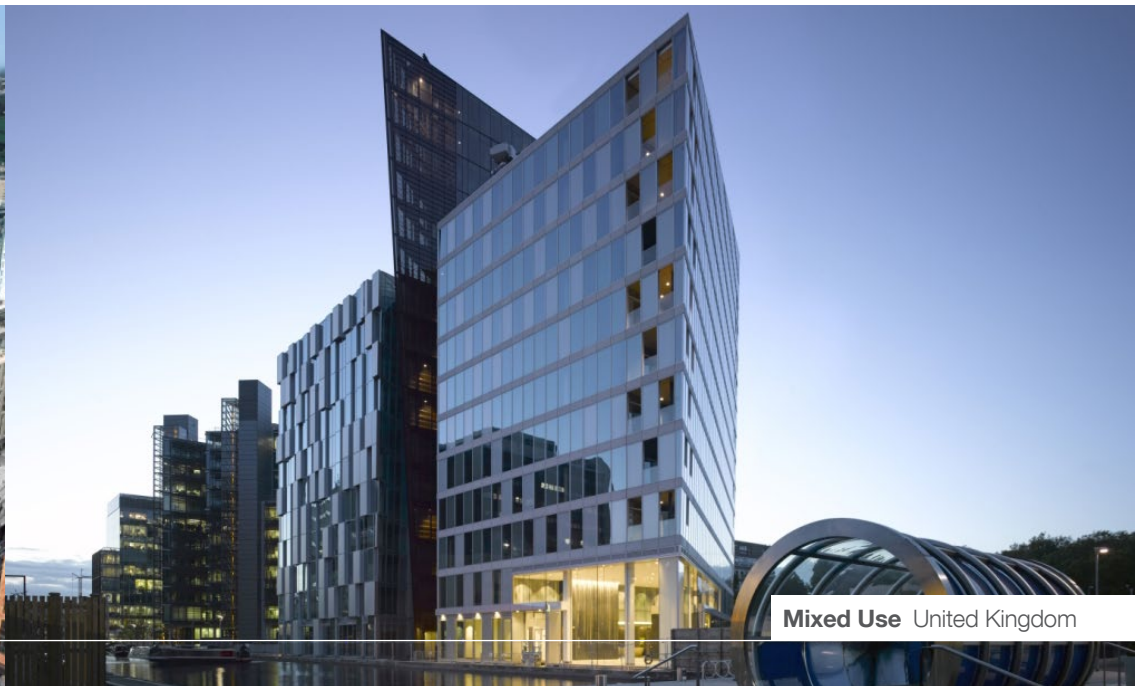
DEXUS appointed NDY to provide core engineering services solutions, with handover to a Design & Construction (D&C) contractor. Aside from being the original 12 Creek Street

base building engineers, NDY's relevant project experience, reasonable fee and extensive experience in working with the key stakeholders were key points towards winning the job. With NDY's expertise, the project was driven to the delivery of the building standard requirements. NDY also provided value-added services such as value engineering and a design review of the D&C tenders. This retains the design intent whilst ensuring the best cost for the building owner.

A unique feature of the project would be the building's façade, which was designed to align with Brisbane City Council's masterplan: Buildings That Breathe Design Guide. The façade of the building's first six levels is aligned with a fig tree canopy which enables outdoor occupation. It is a breathable space linking the indoor area to the outdoor environment, which

provides tangible wellbeing benefits. The upper three levels are also culminated with the sky terrace that was designed to mimic a cascading garden. NDY designed the mechanical systems to accommodate the breathable façade and the sky terrace.

Through a collaborative approach, NDY was able to increase The Annex's efficiency with a full suite of core engineering services solutions. The building's office levels were designed to accommodate both single and multi-lease occupancy, with the ability to subdivide individual floors to a maximum of six suites. This provides flexibility for both the building owner and tenants. The Annex is a quality asset for Dexus' portfolio in the Brisbane CBD, and NDY is proud to have contributed to the project.



Mixed Use United Kingdom

Merchant Square London, England

Services:

- › Electrical
- › Fire Protection
- › Hydraulics
- › Mechanical

About the project:

Merchant Square is a major mixed use development situated alongside the Grand Union Canal in London's Paddington district. The development totals approximately 170,000 sq m gross area and includes three major office buildings, three residential buildings, retail space and local amenities.

The first of the three major office buildings to be constructed, 5 Merchant Square is a 35,000 sq m net lettable office building, partly pre-let to major retailer Marks and Spencer. The building was completed to a high level of specification and includes a low energy fan coil system. The striking facade design required close collaboration between NDY and architects Mossessian & Partners to ensure that solar gain targets were met on all elevations.

Features and Innovations:

- › During the master plan phase, NDY worked with the three separate architectural practices appointed for the various buildings to optimise the planning of the cores and plant areas, and to maximise energy efficiency by balancing engineering services and building energy performance to achieve compliance with Part L of the Building Regulations.
- › Significant carbon emissions reductions were achieved with the inclusion of a sitewide trigeneration installation which was designed to allow sequential implementation to suit the site development strategy.

“The development totals approximately 170,000 sq m gross area and includes three major office buildings, three residential buildings, retail space and local amenities.”



Britomart Precinct – East Buildings Auckland, New Zealand

Services:

- › Acoustics
- › Electrical
- › Fire
- › Hydraulics
- › Independent Commissioning Agent
- › Mechanical
- › Vertical Transportation
- › Sustainability/ESD

About the project:

The Britomart East Buildings are located in the heart of Auckland's Britomart Precinct. The project is a premium office development located directly above Britomart Train Station and comprising two 15,000 sq m high-grade office buildings with ground floor retail and three levels of apartments above.

The typical office levels are the largest office floor plate in Auckland, and both office buildings have a Green Star NZ – Office Design 5 Star Rating. Britomart East includes enhanced public spaces with a central atrium complete with an ETFE roof solution providing a covered retail experience on either side of Te Ara Tahu Lane linking Britomart East with the CPO in the West and Oriental in the East.

Features and Innovations:

- › Rail movements in the tunnel below had the potential to produce unacceptably high noise levels for building occupants. As noise and vibration consultant, NDY recommended the best solution to reduce such vibration across all floors of the three buildings was to vibro-acoustically isolate the buildings.
- › Rainwater harvesting incorporated into the East 2 Building is used for toilet flushing and green wall irrigation, reducing both demand for mains water and storm water runoff.
- › Modelling was carried out to optimise the HVAC design through assessment of energy consumption and thermal comfort levels, and to advise the design team regarding façade, daylight and solar gain.
- › The office buildings are designed with a VAV air conditioning system incorporating high efficiency chillers and boilers, combined with a high performance façade to provide energy efficient operation and maximise occupant comfort.

“

Green walls were installed in the atrium of the complex, and at three storeys high, they are New Zealand's largest living walls.

”



High Rise Office Canada

400 West Georgia Vancouver, CAN

Services:

- › Mechanical
- › Sustainability

About the project:

West Georgia Street is the Central Business District 'high street', home to Vancouver's architectural monuments and landmarks buildings. Westbank contracted Norman Disney & Young (NDY), A Tetra Tech Company, under a design-build agreement for 400 West Georgia, a 25-storey commercial office tower situated at the centre of Georgia Streets emerging business and cultural district.

One of Westbank's main objectives was to develop innovative commercial office space together with a flexible and optimized mechanical system capable of meeting the demands of the next generation office space and achieving LEED Platinum performance. This required optimal collaboration between the design teams, and NDY's diverse in-house offerings was a principal catalyst towards being appointed.

The primary challenge of the project was the building's unique design – inspired by a Japanese lantern and designed by OSO from Tokyo, the building form is a series of stacked boxes cantilevered with steel structure. The project is a direct counter point to the city business as usual expansion era of concrete structures and articulated glass towers, taking inspiration from global cities the building is an architectural sculpture with highly refined details, which remains deeply influenced by Vancouver's natural surroundings.

The result is a complex steel structure allowing the floorplate to rotate every four floors. This structure has led to a decentralized plant arrangement and restricted ceiling voids that are unique from typical large commercial buildings.

Features and Innovations:

- › NDY and Westbank's goal to deliver a uniquely designed building within specific budgetary constraints has been achieved. 400 West Georgia is being built to a LEED Platinum standard which will result to improved standards of energy performance, better air quality, reduced environmental impact and increased daylight for occupant wellbeing.
- › With the dramatic changes happening in the building design industry, NDY retains its position as a global leader in providing innovative solutions. NDY has been a major contributor to the services coordination across all disciplines in a bid to help the project succeed on time and in budget. This was executed through several smart design decisions to the project based on accurate energy modelling and design experience.



Office, Australia

Capital Square, Mixed Use Development, Mounts Bay Road, Perth, WA

Services

- › Acoustics
- › Electrical
- › Fire Hydraulics
- › Fire Protection
- › Hydraulics
- › Mechanical
- › Security
- › Sustainability
- › Vertical Transportation

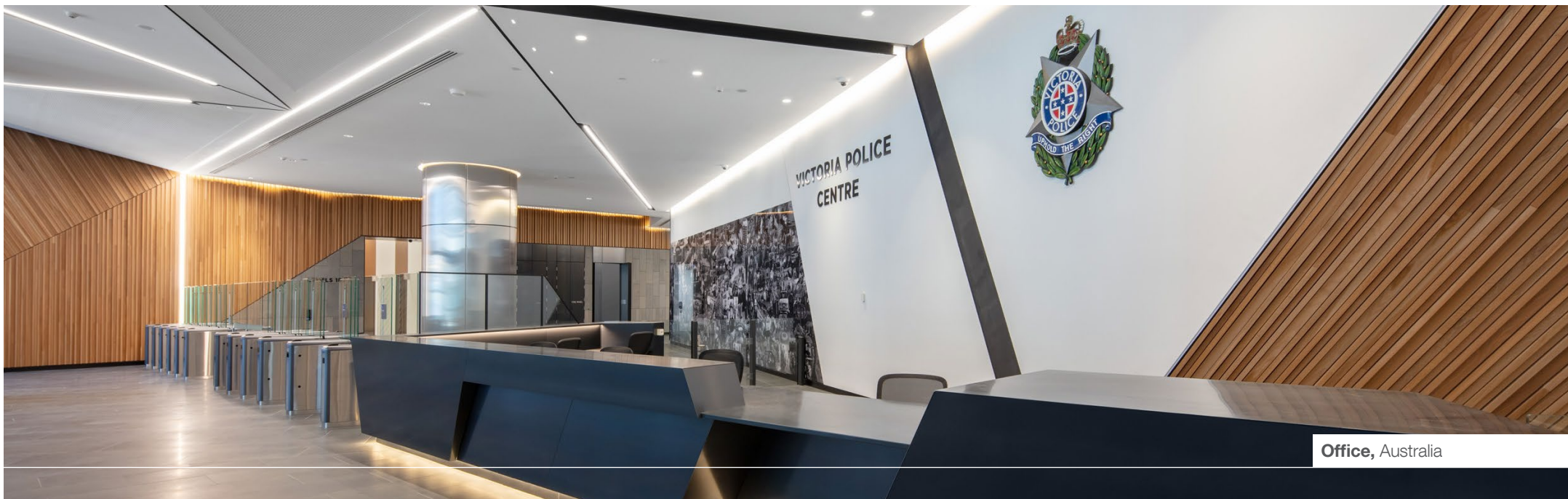
About the project

The Capital Square project is an exciting mixed use development on the old Emu Brewery site. It comprises of a premium grade office tower in excess of 50,000m², a 30 storey residential tower with a 120 room hotel at the lower levels, a 40 storey prestige residential tower and a vibrant public square that accommodates retail, restaurants, a crèche, gymnasiums, spa and swimming pools.

NDY are involved in all of the project built elements. Being responsible for all of the building services (mechanical, electrical, fire, hydraulics and lifts) together with key specialty consultancy (sustainability, Green Star, acoustics and fire engineer) has meant we are able to work closely with the project team and deliver bespoke solutions that meet our client's objectives.

NDY were also engaged to carry out the engineering services design for the newly completed Woodside Energy Limited new office accommodation located within the new Capital Square Development which features 60,000m² of flexible office working space.

The building services was designed 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. There is a strong focus on ensuring that all services solutions are flexible and adaptable to accommodate the changes in both technology and business requirements that will occur during Woodside's life in the building.



Office, Australia

311 Spencer Street, Melbourne, Victoria

Services

- › Acoustics
- › Fire Engineering
- › Fire Protection
- › Hydraulics
- › Sustainability
- › Vertical Transportation

About the project

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 sq m 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 sq m, 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 façade provided was sufficient to reduce noise transmission into the building.

311 Spencer St 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.



Office, Australia

275 Kent St Westpac Fitout, Westpac Place, Sydney, NSW

Services

- › Acoustics
- › Audio Visual
- › Communications
- › Electrical
- › Fire Protection
- › Hydraulics
- › Mechanical
- › NDYLIGHT
- › Security

About the project

The revitalisation of Westpac's global headquarters at 275 Kent Street provides a dynamic contemporary upgrade to this iconic Sydney building, with the project producing an aesthetically pleasing, collaborative working environment befitting the team of Australia's oldest bank.

A landmark development for Westpac from 2016, the scope delivered improvements to building efficiency and aesthetics across 3 main projects, including:

- Fitout of HQ floors 1, 5-8 and 10-23, including client facing areas on levels 1, 15 and 20-22
- Upgrade of infrastructure Westpac critical systems
- Fitout of Skyrise floors 24-32

With an extensive understanding of Westpac's core business through prior engagements, NDY worked with the project team to maximise the full potential of the space, establishing the needs and key drivers of the bank in order to integrate building services seamlessly and in keeping with architectural intent.

User centricity, clear communication and a focus on technical excellence were fundamental.

Upgrades to Westpac critical systems were delivered in parallel to the main HQ fitout and included a review of existing systems including generators, UPS and STS systems, tenant chillers, water tanks and critical BMCS systems. Modifications to the cooling towers and generator were implemented to improve the redundancy of the system and increase energy and cost efficiency.

The fitout includes Westpac's sophisticated new client floor facilities. During the concept phase, NDY's careful investigation of the building infrastructure informed our understanding of the base building systems, including its controls and spare capacity. This information was critical to the design, and enabled NDY to minimise project risks and reduce the overall budget to meet client requirements.

Acoustic solutions were designed to provide maximum privacy, utilising automatic adaptive sound conditioning systems. From the versatile suspended ceiling that also ensures straightforward access to concealed building

services, to use of materials that take control of ambient sound, the design meets a key project goal alongside various acoustic and airflow demands throughout this premium office space.

A minor refurbishment to the Skyrise floors covered 14,000 sq m of NLA, including collaborative workspace that strikes a balance between design and function. Throughout the project's early stages, design considerations included a strong focus on budget that required pragmatic and cost effective solutions for each area. Value management was achieved through consideration of the existing lighting solution for the space that is in keeping with the lighting across HQ floors, thereby maintaining a consistent Westpac aesthetic.

275 Kent Street sets a new commercial office benchmark, providing a collaborative, flexible and comfortable space for the Westpac team to excel within. *Image courtesy of Steven Brown Photography.*



Retail / Residential & Hotels / Office Australia

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 and As Built rating.

Chadstone Shopping Centre Melbourne, VIC

Services:

- › Acoustics
- › Communications
- › Electrical
- › Fire Protection
- › Hydraulics
- › Mechanical
- › NDYLIGHT
- › Security
- › Sustainability
- › Vertical Transportation

Client: Vicinity Centres
PM Pty Ltd

Not only the largest shopping centre in the southern hemisphere, Chadstone – The Fashion Capital enjoys status as one of the world's leading integrated lifestyle destinations, with more than 24 million visitors a year. NDY has established a long-term partnership with Vicinity in the ongoing development and operation of Chadstone.

Sustainable Long-Term Masterplan

Development of a long-term services infrastructure masterplan, with a vision to cater for the significant mixed use growth strategy that the Chadstone precinct plans to offer, including reflection on previous development choices, to set a strategy which adopts sustainable development aspirations including reduction of fossil fuel use, and net zero carbon.

Development Evolution

Concept design, and development application documentation of the next evolution of major development including approximately 20,000 sq m retail redevelopment/expansion, 20,000 sq m commercial office tower, entertainment expansion, and significant customer parking expansion.

Chadstone Tower One

Australian property leader, Vicinity Centres, has a new state-of-the-art national office, integrated within the 16,000 sq m office development. NDY also designed Vicinity's new 7,000 sq m corporate workplace, designed to encourage staff collaboration and occupant wellbeing, and delivered as an integrated project. As sustainability consultants, NDY lead the development of sustainable design to achieve a 5 Star Green Star Interiors rating.

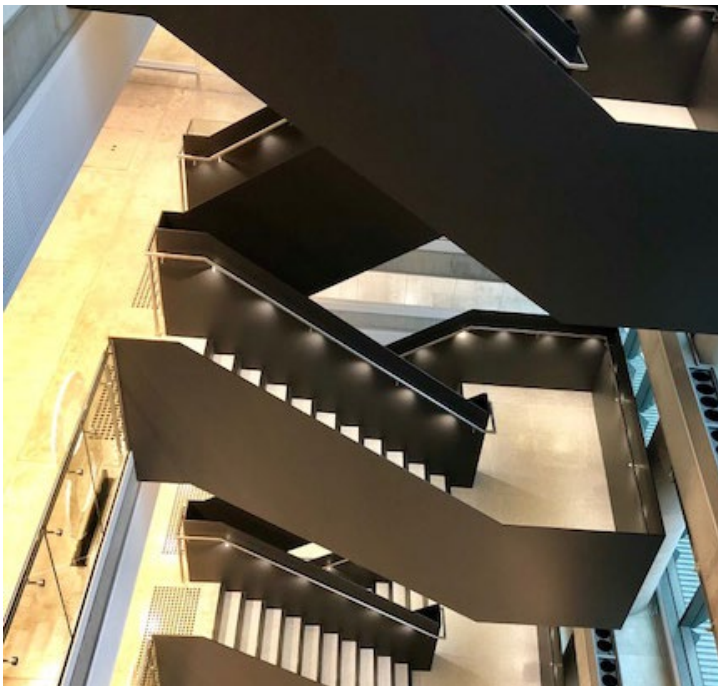
An open central stair is provided across Vicinity's four floors, which required fire engineering solutions that support the design aesthetic and safety objectives.

West Piazza, and Tenancy Coordination

Repositioning of existing retail space, including Category 1 works for various tenancy refit, and minor retail expansions, including: West Piazza restaurants, incorporating Calia, Chadstone Visitor Lounge, Bulgari & Muji signature store.

Hotel Chadstone Melbourne, MGallery by Sofitel and The Link

Working alongside leading Australian architects Bates Smart, NDY were engaged by Vicinity to design the new \$130 million Hotel Chadstone for AccorHotels, who manage the 250-room luxury 5 star hotel under its MGallery by Sofitel brand. 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, lounge bar, a ballroom plus two restaurants Altus and Pastore, including extensive meeting room and conference facilities. The communications network comprised of an advanced passive optical network (PON), providing a backbone that will be compatible with current and emerging technologies.



Office, Australia

900 Ann St - Aurizon Fitout, Brisbane, QLD

Services

- › Communications
- › Electrical
- › Fire Engineering
- › Fire Protection
- › Hydraulics
- › ICT
- › Mechanical
- › Security

About the project

1 Denison St. is a 39-storey Premium Grade Aurizon, one of Australia's Top 50 ASX-listed companies and Australia's largest rail freight operator, contracted NDY to provide engineering services for their new corporate head office at 900 Ann St, Fortitude Valley. NDY previously worked on the base building with the developers, Consolidated Property Group who secured Aurizon as the major tenant. NDY's thorough understanding of Aurizon's requirements, commitment to Work Health and Safety, and knowledge of base building services were the top motivations for winning the project.

The Aurizon fitout covered approximately 11,500 square metres over 8 floors and was an integrated fitout with the base building.

This 5-Star Greenstar project brought together existing Aurizon offices into one, and as such, the design team created a more collaborative space. The inclusion of Aurizon's National Operations Service Centre (NOSC) within the building meant that NDY had to work very closely with the base building contractor to upgrade the building services infrastructure to suit Aurizon's requirements. This included upgrade to the generators, tenant condenser water and supplementary outside air systems to suit the client's requirement including high levels of redundancy.

NDY was the both building and tenant fitout engineers, so to ensure management of any conflict of interest and protection of intellectual property - NDY created separate teams for base building and tenant projects. This is to ensure the relevant client's needs were adhered to whilst retaining confidential information.

Partners in the project include Hassell, CBRE, Hutchinson and Consolidated Property Group. A close collaboration with Aurizon's IT/Audio Visual (AV) team enabled NDY to deliver an infrastructure supporting a dynamic and intuitive AV experience for users. This was essential for the client to foster teamwork within many of their remote site across Queensland and Australia.



Mid Rise Office United Kingdom

The Charlotte Building London, England

Services:

- › Electrical
- › Fire Protection
- › Mechanical
- › Vertical Transportation

About the project:

Norman Disney & Young was responsible for the design of the mechanical, electrical, public health, fire and lift services for 16-19 Gresse St, a new commercial office development within London's West End. The building has a total gross floor area of approximately 50,000 square feet.

The client brief was to develop an energy efficient building incorporating best practice in current technology. To achieve this aim, the engineering services design includes a highly efficient displacement ventilation system which uses free cooling for a large proportion of the year.

Awards:

London & South East British Council for Offices Awards
› [Commercial Workplace category](#)

Royal Institute of British Architects 2010 Award

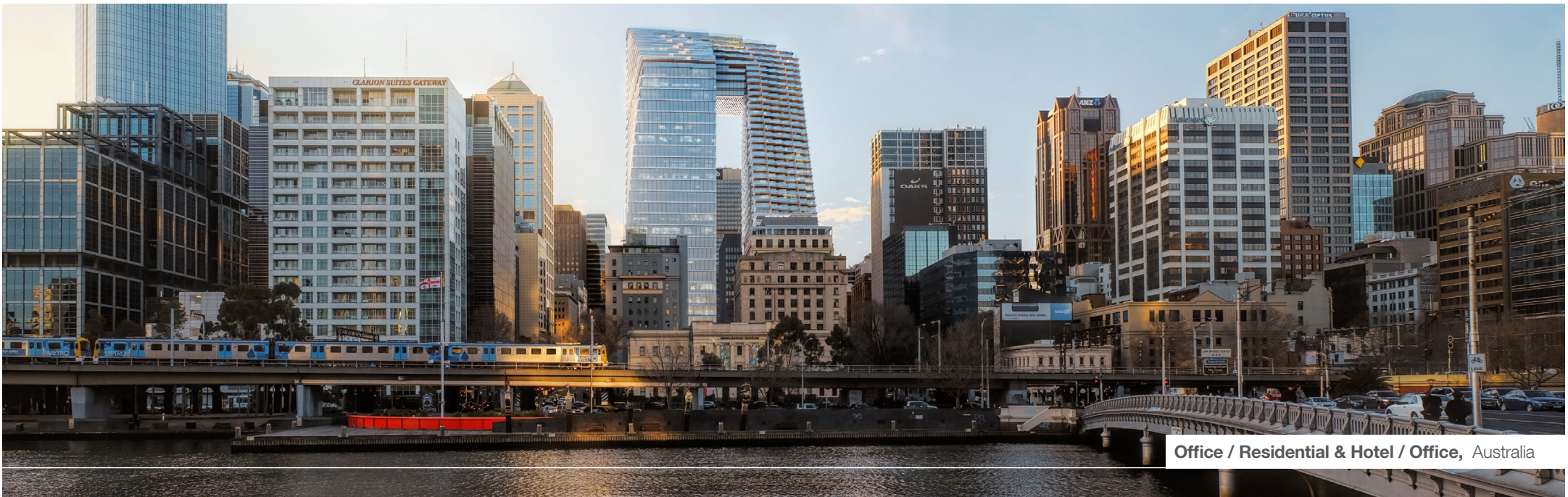
Features and Innovations:

- › NDY worked closely with the architect to minimise façade solar heat gains whilst achieving the architectural design vision for the building.
- › Strict planning restrictions on the height of the building have dictated that no plant can be accommodated on the roof. This design approach has required careful consideration and coordination to maximise net floor area while maintaining services requirements.
- › The building won the 2010 London and South East regional BCO Awards in the Commercial Workplace category. The judge commended the building for being an “exemplary office development which has been well conceived and executed by the design team and developer”.

“

NDY worked closely with the architect to minimise façade solar heat gains whilst achieving the architectural design vision for the building.

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Office / Residential & Hotel / Office, Australia

Collins Arch 447 Collins Street, Melbourne, Victoria

Services

- › Commissioning Management
- › Fire Engineering
- › Hydraulics
- › Mechanical
- › Vertical Transportation

About the project

The Collins Arch mixed-use development encompasses an entire city block site bounded by Collins Street, William Street, Market Street and Flinders Lane.

Developed by Cbus Property, this unique and landmark project is the last CBD “island development site” bounded by wide streets and heritage buildings. It provides significant publicly accessible open space, including Market Street reclamation, adding to the character of the neighbourhood, and local community.

This premium quality mixed used development consists of 50,000 sq m Premium grade office, basement parking for 500 cars, and a vibrant ground floor hotel restaurant and retail offering befitting of its unique location.

Building amenities include first class end of trip facilities, and benefit of the 5 Star W Hotel restaurants, function spaces, and health & fitness facilities.

Norman Disney & Young facilitated the integration of key tenants into the building including Gadens, Minter Ellison, HWL Ebsworth, and Future Fund.

Woods Bagot and SHoP Architects (US) collaborated on the design which befits the site and location, demonstrating a true interrelationship of each use, world leading sustainable design, a 5.5 star NABERS energy target, and a health & wellbeing focus through WELL Platinum certification.



73 Remuera Road Auckland, NZ

Services:

- › Acoustics
- › Communications
- › Electrical
- › Fire protection
- › Fire engineering
- › Hydraulics
- › Mechanical
- › Security

About the project:

NDY completed full building services design for this new office building development in the central Auckland suburb of Newmarket.

The building consists of five open plan office floors with large floor plates as well as three subterranean car parking levels. There are also in-building cafe and gym facilities.

Features and Innovations:

- › The design originally targeted a 4 Green Star design rating but this was increased to 5 Green Stars. This necessitated a significant number of design changes across all disciplines to achieve this higher level of efficiency and building performance.
- › The site of the building has a number of resource consent restrictions placed on it which include height limits and noise constraints. In addition the building is located immediately adjacent the railway track, which has significant noise impact on the building. However, NDY found workable and cost-effective solutions which fit within these constraints.

“

The building consists of five open plan office floors with large floor plates as well as three subterranean car parking levels.

”



Office, Australia

1 Denison St, North Sydney, NSW

Services

- › Acoustics
- › BIM
- › Communications
- › Electrical
- › Fire Protection
- › Hydraulics
- › ICT
- › Mechanical
- › Security
- › Sustainability
- › Vertical Transportation

About the project

1 Denison St. is a 39-storey Premium Grade commercial development in the heart of North Sydney with approximately 62,000 square metres of Net Lettable Area (NLA). The development also incorporates three levels of plant, ground floor and mezzanine retail areas, five basement levels and substantial end-of-trip facilities including bike parking for almost 900 bikes. The project is targeting 5 Star NABERS, 5 Star Green Star and the relatively new WELL rating.

Channel 9 is the anchor tenant establishing their new studio facility and office space in the building which requires a high level of base building upgrade to include various resilience requirements for mechanical, electrical and hydraulic systems.

NDY were engaged on a 70% Design & Construct (D&C) basis and Engineering Commissioning Services (ECS) were appointed as independent commissioning agent for the project providing valuable review and input during the design finalisation stage to facilitate a smooth commissioning and handover phase.

NDY's BIM Management team was also engaged independently by Multiplex to drive the coordination and clash resolution of the D&C subcontractor's services design enabling installation works to progress efficiently onsite.

NDY continued to act as the 1 Denison St. BIM Manager on behalf of Winten Property Group and the Building Manager, providing BIM support and expertise during the fitout stages of construction and into the management and operation of the building.

The project site has many logistical constraints for demolition and early works to meet the tight program. Whilst it has not directly impacted the NDY services design, it reminded the team of the many issues that goes into delivering such a high-profile project.



Office, Australia

Melbourne Central Tower Lobby Transformation, 360 Elizabeth Street, Melbourne Victoria 3000

Services

- › Audio Visual
- › Mechanical
- › Electrical
- › Fire Protection
- › Hydraulics
- › NDYLIGHT

About the project

With its striking impact on the city skyline and convenient location, the 51 floor Melbourne Central Tower has long been one of Melbourne's prominent commercial buildings. As part of the transformation of the ground floor lobby into "a place where people and technology blend in a streamlined extension of the workplace", GPT engaged NDY to design building services alongside audio visual and architectural lighting services.

The project delivered a cutting-edge lobby revitalisation, adding three retail and hospitality spaces, new entry doors and lift area, concierge, services upgrades, and new business facilities, including a flexible work hub with a tiered amphitheatre showcasing an impressive 300 inch, high definition video screen.

Perhaps the most striking feature of the lobby is the panoramic motion art wall, the largest indoor screen in the Southern Hemisphere. Providing a focal point for both tenants and visitors, it is the latest in large format LED screen technology and showcases curated motion art exploring Melbourne's culture and wellbeing, putting this building and the city of Melbourne on the world stage.

With an open space lobby and double height ceilings, the building services design was a challenge for new retail areas around the perimeter. Without the ability to utilise the ceiling space, our solution was to reticulate more services through the basement level below, including new tenant authority metered services. In consideration of space limitations, NDY

also developed a small standalone plant room adjacent to the business hub and amphitheatre to house the required mechanical equipment, whilst being fire separated from the other lobby areas. The complex design was implemented through a staged program following careful consideration and planning, allowing this well-known CBD building to remain operational during construction works.

In refreshing the lobby, the project created a new and inviting space for tenants and their employees. The outcome is a user friendly, modern and aesthetically pleasing facility with technologically advanced features that takes Melbourne Central Tower into the future.



Suncorp HQ, Heritage Laneways, 80 Ann Street, Brisbane, QLD

Services

- › Acoustics
- › Audio Visual
- › Communications
- › Electrical
- › Fire Services
- › Hydraulics
- › Interiors
- › Mechanical
- › NDYLIGHT
- › Security
- › Sustainability

About the project

Suncorp HQ represents a new generation of consolidated offices and a new home Banking and Insurance company. NDY is the fitout consultant with a scope to design all fitout services, that included assisting with the technical due diligence assessments of the development options . NDY are also involved in reviewing base build designs that includes participating in the building design review groups to help achieve a customer-focused outcome, and ensure the building meets the performance requirements of Suncorp establish during the market search for their new HQ.

The development will incorporate a Suncorp store for our customers, and a precinct that offers a vibrant destination for the local community. The project is targeting a suite of high performance sustainability ratings including 6 Star Green Star, 5 Star NABERS Energy and 4 Star NABERS Water ratings as well as a Gold Shell and Core WELL Certification..

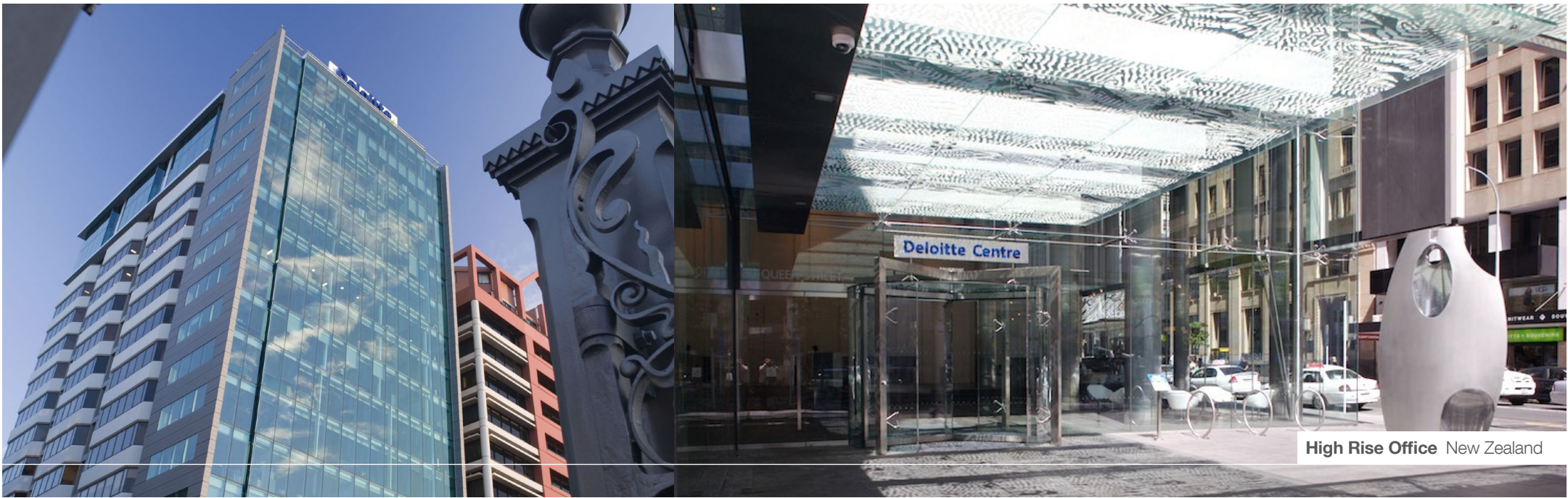
The project will incorporate elements from Brisbane City Council's 'Buildings that Breathe' principle, with spaces that open out to external and landscaped green space

“

80 Ann Street will combine quintessential Queensland design features with visionary global thinking to create an exceptional workplace for tenants and an activated city precinct for the community

Mirvac's CEO & Managing Director, Susan
Lloyd-Hurwitz

”



High Rise Office New Zealand

Deloitte Centre, 80 Queen Street Auckland, New Zealand

Services:

- › Electrical
- › Hydraulics
- › Mechanical
- › Sustainability

About the project:

NDY was commissioned to provide building services and acoustic services design on the 80 Queen Street Office Block for Multiplex Developments.

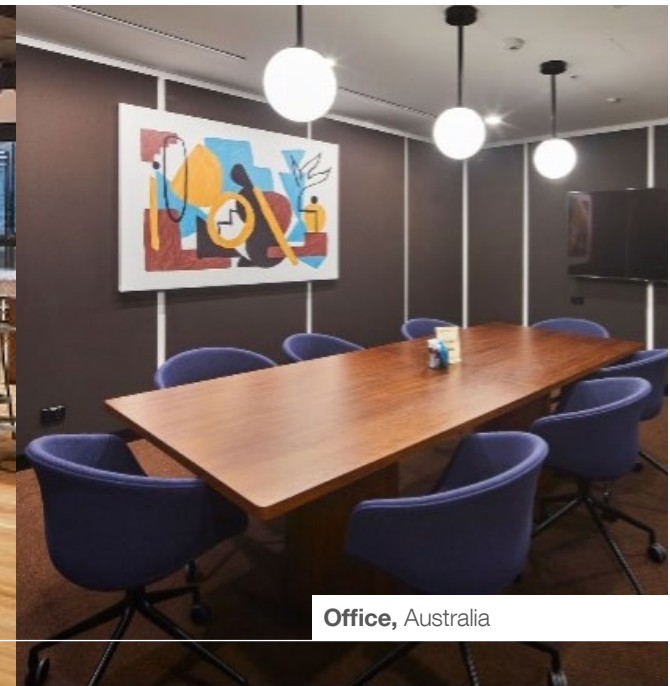
Features and Innovations:

- › The building is one of the first two projects to achieve a Green Star – Office Design Certified Rating in New Zealand and will provide office facilities to both Deloitte and BNZ.
- › Both these organisations were focused on how their work environment could be designed to equally benefit both employee and company and the evolution of Green Star into the project was developed by the BNZ and Brookfield Multiplex.

“

The building is one of the first two projects to achieve a Green Star – Office Design Certified Rating in New Zealand...

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WeWork 1 Sussex St, Sydney, New South Wales

Services

- › Electrical (Power)
- › Fire Protection
- › Hydraulics
- › Mechanical

About the project

Located in Sydney's iconic Barangaroo South precinct, the six-floor Daramu House is the site of global co-working company, WeWork's flagship Sydney location occupies over 10,000 sqm of commercial office space. Daramu House, meaning "Tree House" in the Aboriginal language of the Sydney region, represents the company's most ambitious and celebrated location within their growing Australian portfolio. The building is one of Australia's premier cross laminate timber (CLT) office buildings, delivering an exciting glimpse into timber-centric cities of the future.

One of the distinctive features of Daramu House is the timber exoskeleton which defines the overall ambiance of the building. This is a contemporary and innovative structure, contrary to the typical steel and/or concrete building construction, and a step towards a future of sustainable developments.

NDY collaborated with the team at WeWork during the Agreement for Lease negotiations with the landlord to assess the landlord's offer and to identify base building upgrade provisions in order to meet the high-density requirements of the fitout.

As there are no ceilings in the open plan spaces, coordination of building services, structural and architectural elements were crucial to meeting the design aspirations of WeWork for the workplace. NDY led the coordination activity working closely with the interior designer and WeWork throughout the design phases to model the fitout elements to simplify the construction phase activities.



Transport House, Fortitude Valley, Queensland

Services

- › Communications
- › Electrical
- › Fire Protection
- › Hydraulics
- › Mechanical
- › Sustainability

About the project

LaSalle Investment Management, a leading real estate management firm and an independent subsidiary of Jones Lang LaSalle, (on behalf of investor, Partners Group) wanted a full external and internal refurbishment of Transport House, a vacant nine-level commercial office tower in the heart of Fortitude Valley. Commonly known as “The Valley” by locals, the suburb has been renowned for its vibrant lifestyle and stunning scenery; and with the building being above one of Brisbane’s biggest railway stations, Transport House is a strategic business location.

The original building was constructed in 1974, which meant that updating the building services design and space to meet the current tenant requirements and sustainability targets were key project considerations. As a brownfield site, the staging of the works and cutovers was critical. To overcome this, NDY provided design

development for tendering and assisted the D&C contractor, Built, through Tender Assessment. Upon selection, NDY facilitated the design review and held inspections to ensure alignment with the design brief.

The project needed careful consideration on the distinction of services across all disciplines to ensure the separation of services between the Transport House and Valley metro station below. NDY upgraded the building’s smoke control system to provide a functioning stairwell pressurisation system. This solution involved the integration of operable windows in the new façade which provides a relief pathway.

NDY, in close collaboration with Architectus, ensured that the exposed services in the ceilings maintained its aesthetic appeal. In this collaboration, a façade system that works

within the constraints of the existing mechanical systems was selected. This was to ensure that the floor-to-ceiling ‘glazed’ look was achieved.

Transport House has undergone a major transformation into a dynamic A-grade commercial hub featuring new amenities, lobby areas, a sleek glass façade and a safe underground connection to the Fortitude Valley train station and Valley metro retail centre. The building meets a hybrid PCA A/B Standard and will achieve a 4 Star NABERS rating, set to achieve a 4.5 Star rating once 75 percent occupancy is reached. Through the reuse of existing structure and services, NDY helped LaSalle Investment Management minimise environmental impact and achieve its NABERS energy targets. According to the client, NDY is a proactive team with good internal coordination and innovative solutions to meet their needs.



Constitution Place, ACT Building A, B and Basement

Mechanical, Electrical, Fire Protection, Hydraulics, Fire Engineering, Acoustics, AV, Security, Sustainability

The Constitution Place precinct consists of approximately 32,000m² of commercial NLA across two buildings. In addition to a 132 room hotel and over 500 car spaces across 3 levels of common basement. The development has 10 retail tenancies and a commercial gym and childcare. Commencing design in 2016 and currently in construction, Building A has a large central atrium, exposed soffit, extensive end of trip facilities and large central breakout hubs.

Transurban Fitout, Collins Square, Docklands, VIC

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

NDY worked closely with Transurban to evolve their workspace across levels 24 to 31 of Tower 5 at Collins Square - a precinct we have worked on since conception and understand very well. Spanning 8 floors at approximately 14,800 sq m, Transurban's focus was on creating a diverse, collaborative and flexible space, using innovative technology to provide an intuitive, seamless and standardised user experience.



3 Molonglo Drive, Brindabella Park, ACT

Mechanical, Electrical, Fire Protection, Hydraulics

3 Molonglo Drive consists of approximately 35,000m² of commercial NLA. In addition to basement carparking across 2 basement levels.

Completed in 2019, the building houses over 2000 Staff as the new headquarters for the Department of Immigration and Border Protection in Canberra.

Gadens Fitout, Collins Arch, Melbourne, VIC

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

The workplace design for legal firm Gadens provides a modern and innovative 2.5 level, 5,000 sq m fitout. NDY partnered with Bates Smart to design a workspace which provided a welcoming environment for the Gadens team and clients alike. As the first commercial fitout within the Collins Arch development and constructed concurrently with the base building works.



The Hay 500 Project, Subiaco, WA

Mechanical, Electrical, Hydraulics, Fire Protection, Lifts, Acoustics, Sustainability, Specialist Lighting

The Hay 500 Project is a 5 Star Green Star and 5 Star NABERS designed mixed-use development incorporating office, retail, cinema and hotel uses. The activated link has been envisaged as a pedestrian retail laneway/piazza between the new buildings and 502 Hay Street. Pedestrian movement and permeability are key aspects of the design.

1 Eden Park Drive Sydney, NSW

Mechanical, Sustainability, Fire Engineering & Acoustics

An 8 storey A-Grade commercial development in Macquarie Park with approximately 9000 square metres of Net Lettable Area (NLA). The development also incorporates a ground floor commercial show room and retail areas, two basement car parking levels and an end-of-trip facility. The project is targeting 5 Star NABERS, 5 Star Green Star and a WELL Gold rating.



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at the forefront of innovation.

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and projects are unique, and we are
adept at tailoring our services and
designs to suit project requirements.



Stuart Fowler

CEO
Norman Disney & Young

”

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