



Norman  
Disney &  
Young  
A TETRA TECH COMPANY

# Residential

Capability Statement



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**NDY by  
numbers**

established  
**1959**

**600+**  
people

**9**  
key markets

**12**  
offices

**5**  
countries



# Introduction

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Norman Disney & Young (NDY) is delighted to present this brief outline of our expertise in residential projects.

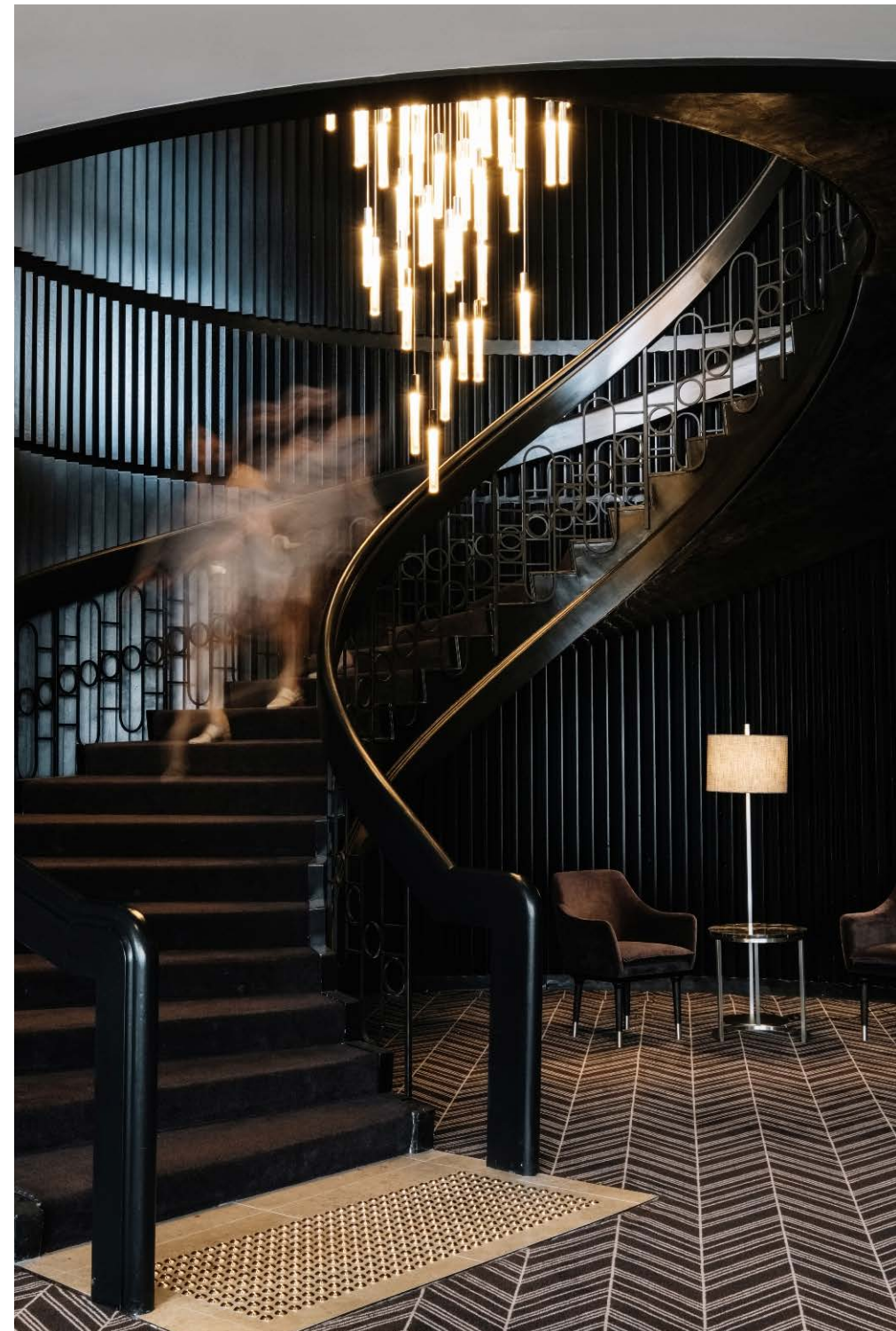
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Residential buildings require a unique skill-set, and we have extensive experience in providing building services for residential developments. These range from small projects to one of the world's tallest residential developments, Melbourne's Eureka Tower.

Our extensive experience in high-end residential developments means we understand the need to balance engineering services and building energy performance.

We provide a range of speciality services and are also in demand for our experience with practical and cost-effective solutions. Our clients' residential projects benefit from the breadth of expertise provided by our people.

We look forward to the prospect of working with you on your next project.



## 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](http://www.ndy.com/about-us/our-ethical-statement)



Common Ground, Sydney, NSW

## 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 residential capabilities

Our residential experience spans from affordable and social housing through to high end luxury apartments for low, medium and high rise developments.

Each project starts with optimising the passive characteristics of the development to reduce its carbon footprint as far as practically possible. Our team of specialists conduct extensive thermal modelling to test various facade options, working closely with the architects to deliver the required aesthetic whilst simultaneously satisfying the energy reduction and resultant carbon reduction aspirations.

With all passive measures in place we then research the most suitable building services solutions and, together with the cost consultant, present these to our clients. The impact that each option has on core efficiency is high on the agenda, ensuring that decisions are made with all the necessary information available.

Our fire teams apply fire engineered solutions permitting extended travel distances and reduced stair numbers where possible, further increasing core efficiency.

Our specialist communications and security teams are continually tracking technological developments and trends in the residential sector. This research is shared with our clients to ensure that their developments are always at the leading edge, providing a competitive advantage in an active sector.

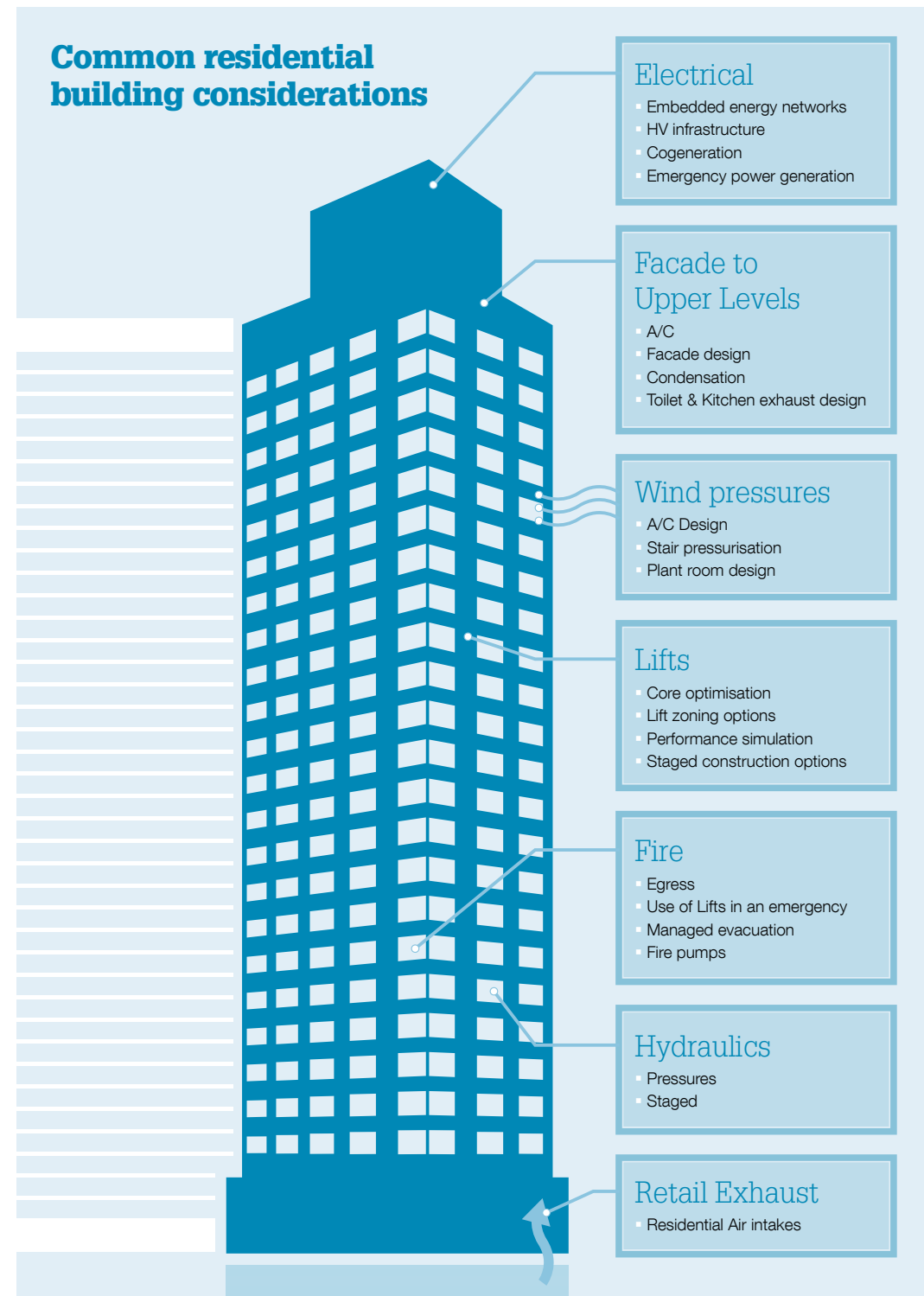
As the number of residential tower projects has increased over the past few decades, so too has the demand for our specialist understanding of tall buildings. The importance of coordinated service delivery is key to a project's success.

Specialist expertise is required when designing and selecting services and plant for high rise residential buildings. NDY has extensive experience in the design of building services for residential towers, and we understand how to achieve outcomes that eliminate risk.

A combination of design expertise and practical understanding of construction methods enables NDY to contribute positively through all phases of design and construction.

The extensive experience of senior personnel is intensively applied in early stages of a project to ensure that the initial decisions are sound and sustainable throughout the project.

## Common residential building considerations







4 Merchant Square, London, UK

# Sustainability & residential buildings

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.

Our team has extensive experience designing and delivering engineering services on a wide range of residential buildings – from premium high rise addresses to student accommodation.

Heating and cooling typically accounts for 40 per cent of overall energy consumption in residential buildings. Demand for energy efficiency in the residential market will continue to accelerate as developers and occupants look to cut costs, reduce their carbon footprints and future-proof their assets.

We help our clients achieve significant financial savings by addressing building operations issues – from energy and emissions minimisation to water conservation, and from waste management to noise reduction.

Incorporating innovative solutions, we create high-quality indoor environments that improve the health and wellbeing of residents.

Our work on hundreds of green building projects in Australia, New Zealand and the United Kingdom gives us the deep experience and expertise to deliver efficient, affordable solutions with exceptional outcomes – from reduced operating costs and better health and wellbeing, through to higher profit margins and market differentiation.



Photo: 150 Clarendon Street, Melbourne (photo by Michael Downes)

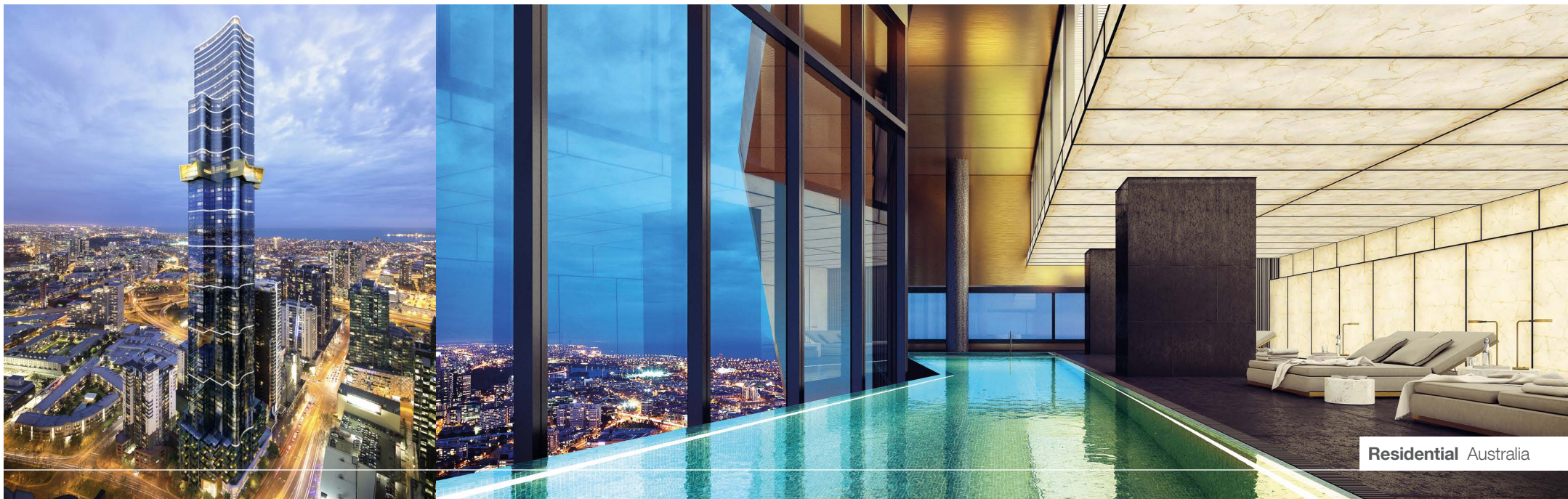
# NDY **residential buildings experience**

**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](http://www.ndy.com)**





## Australia 108 Melbourne, VIC

### Services:

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

**Client:** World Class Land  
Southbank Pty Ltd

**Architect:** Fender  
Katsalidis

### About the project:

At 319 metres, Australia 108 is set to be the tallest (highest occupied floor level) building in Australia and the Southern Hemisphere.

Located in the Southbank precinct of Melbourne, the residential tower consists of 1,105 apartments over 100 floors. The building houses significant resident amenities on level 12 and levels 70/71 'starburst'. These include: pools, spas, gym, sky lounge, private dining, library, cinema and a golf driving range.

Australia 108 has been designed to meet the objectives of the City of Melbourne's Planning Policy Clause 22.19 Energy, Water and Waste, and to meet the intent of Clause 11 Environmentally Sustainable Design of the Incorporated Document.

This report demonstrates that the development achieves a Best Practice in Sustainable Design standard, and is consistent with the City of Melbourne's Eco-City goals, as applicable to city residents.

The development will be consistent with a self-assessed 4 Star Design rating benchmarked against the Green Star Multi-Unit Residential assessment tool, and will achieve a 35% reduction in greenhouse gas emissions compared to a benchmark development.

Key initiatives to be incorporated in the 70 Southbank Boulevard development to ensure the above goals are met include:

- › Apartment design to exceed NCC 2013 minimum thermal performance requirements (NatHERS average star rating) by at least a 10% improvement
- › Cogeneration system to provide low carbon electricity generated onsite, with waste heat used for domestic hot water, swimming pools and space heating
- › Selection of materials with low environmental impact
- › Environmental management plan for construction along with a high level of reuse and recycling of construction and demolition waste

- › Efficient air conditioning and lighting systems
- › Efficient fixtures and fittings to minimise water consumption.

### Technical Challenges

The design of supertall buildings is particularly challenging for building services and fire evacuation, with a number of innovative NDY design initiatives included in this landmark project, including:

- › The use of high speed lifts as part of the emergency evacuation strategy for the high rise
- › High Voltage (HV) electrical reticulation system
- › Piping systems for mechanical, hydraulics and fire protection services distributed into efficient vertical zones to avoid excess water pressures due to the building height on pipework and equipment systems.

Construction of the \$500 million residential skyscraper is set to be completed in stages from 2017 with completion in 2020.





## 2nd and Main Building **Vancouver, CAN**

### Services:

- › Electrical
- › Mechanical
- › Plumbing

### About the project:

Create Urban Development Corporation engaged NDY to design 180 East Second Avenue, also known as “2nd and Main”. Located at the intersection of Second Avenue and Main St. in downtown Vancouver, this 12-storey residential building contains 233 market units, 30 non-market units for social housing purposes, and five levels of parking underground. The project is currently under construction with practical completion scheduled for February 2021. NDY has been retained to design the electrical and mechanical services of the building. 180 East Second Avenue had different types of suites that varied for every floor, which had been the primary challenge for the team. NDY played a key role in overseeing the plumbing, mechanical and electrical aspects during the design and construction phases.

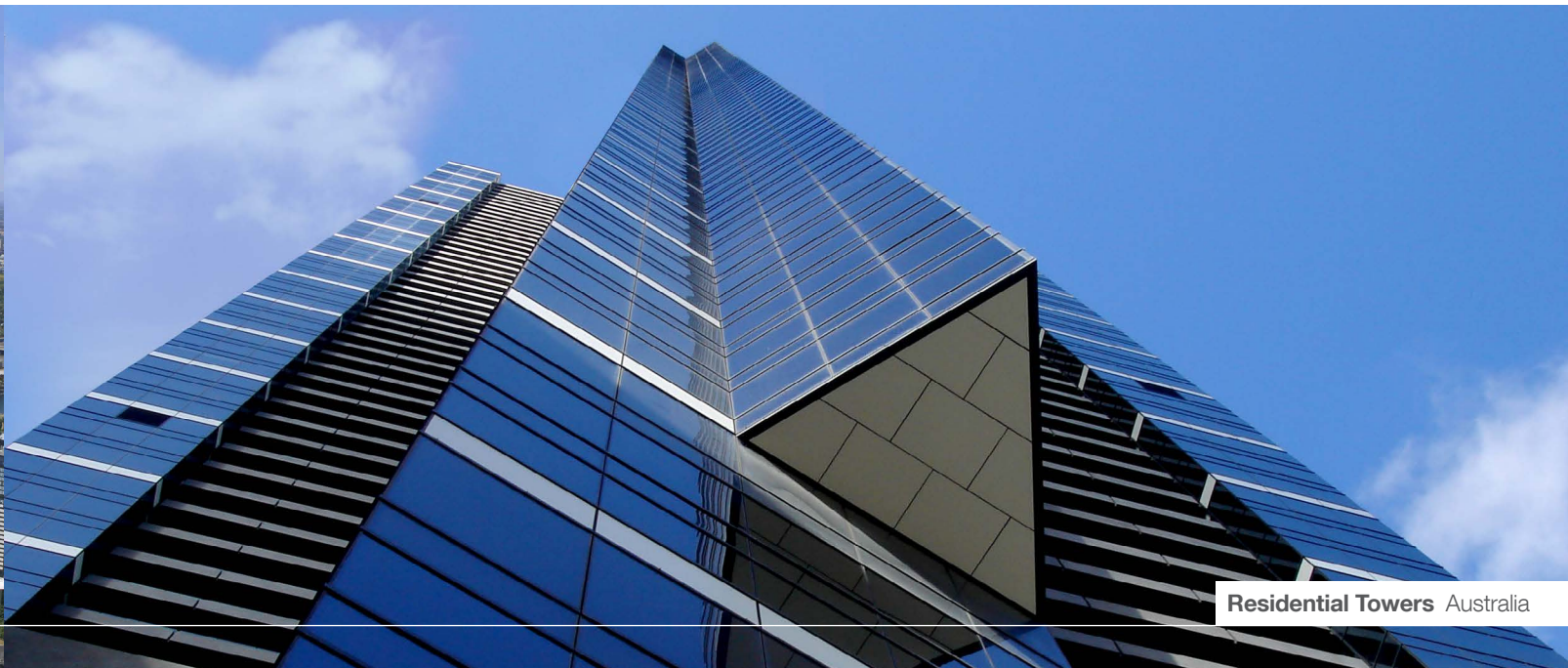
The project is targeted for LEED Gold certification therefore we have been working with the firm Light House on items related with mechanical, plumbing and electrical to meet the intended target. After the first review from the Canada Green Building Council, we are working on addressing items they have questions and concerns about prior to occupancy of the building.

As the City of Vancouver owns a District Energy system, heating is already available for the building. The entire building has air conditioning; however, the non-market suites for social housing purposes only have the water base board for heating and no cooling. NDY ensured the non-market suites had their own equipment to deliver an air handling solution as well as space and domestic heating.

There is also an artist studio area with a spray booth in the building, and NDY ensured that there is enough exhaust and lighting in the space. There was collaboration with City of Vancouver District Energy department to ensure our space and domestic design met all their requirements prior to approval of the building permit. This included review of items such as temperatures, peak loads, flow rates and system control.

NDY collaborated with architects DYS Architecture, general contractor Urban One Builders, landscape architect Durante Kreuk, code consultant McAuley Architectural Consulting, and structural engineers Glotman Simpson. The NDY team designed all electrical, mechanical and plumbing services for the residential tower.





Residential Towers Australia

## Eureka Tower Melbourne, VIC

### Services:

- › Audio visual
- › Building Automation Systems
- › Communications
- › Electrical
- › Fire Services
- › Hydraulics
- › Mechanical
- › Vertical Transportation

### About the project:

At 92 storeys and over 550 apartments Eureka Tower is not only Australia's tallest building, and one of the tallest apartment buildings in the world, it is also a vertical village with all the associated amenities required for a small community to live. The size and complexity of Eureka required a high level of coordination of services, structure and architecture to ensure that the tight construction programme was achieved.

The building consists of the following elements:

#### Apartment Tower

- › Apartments
- › Penthouses

#### Summit Complex

- › Serviced offices
- › Restaurants
- › Observation deck

#### Podium

- › Car park
- › Retail
- › Restaurants
- › Showrooms

### Features and Innovations:

NDY also developed the overall fire and life safety strategy for Eureka. Lifts, refuge areas and smoke control provide a safe, manageable and cost effective environment for the occupants of the building which would not have been possible under a strict "deemed to comply" system.

By providing a coordinated services design and proactively engaging the architect and structural engineer, NDY was able to provide a highly co-ordinated and rationalised services design which minimised plant and riser space. The design also focused on flexibility and ease of maintenance so that the tower would be able to function effectively over its long life.

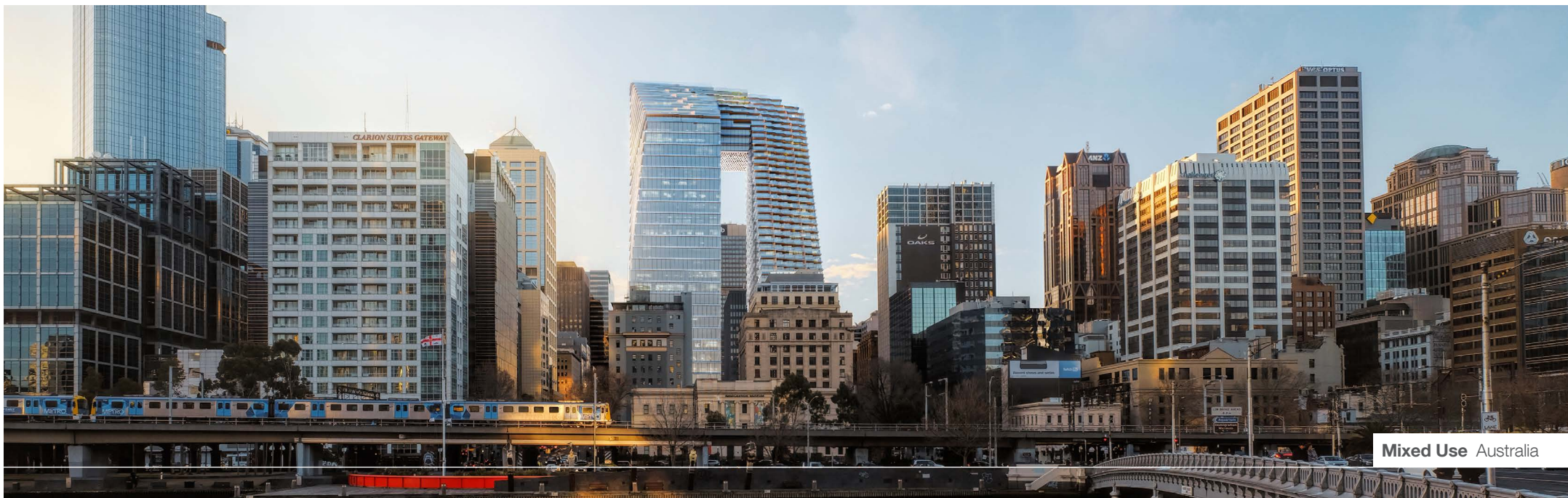
In November 2007 NDY was awarded a Certificate of Recognition for the innovative emergency evacuation solution for Eureka Tower at the ACEA Awards.

“

The size and complexity of Eureka required a high level of coordination of services, structure and architecture to ensure that the tight construction programme was achieved.

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Mixed Use Australia

## Collins Arch 447 Collins Street, Melbourne, VIC

### 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” bound by wide streets and heritage buildings. It provides significant publicly accessible open space, adding to the character of the neighbourhood, and the local community.

This premium quality mixed used development consists of a luxurious 5 Star Hotel with 292 rooms, 202 luxury residential apartments, basement parking for 500 cars, and a vibrant ground floor retail offering befitting of its unique location.

Building amenities include first class end of trip facilities, hotel wellness centre with heated pool, hotel functions rooms, resident’s wellness centre with private heated pool, and a resident’s skygarden at the highest level.

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, and a commitment enabling tenants to provide WELL Standard premises for all occupants, including staff.

“

This premium quality mixed used development consists of a luxurious 5 Star Hotel, luxury residential apartments and basement parking for 500 cars.

”





## Etihad Towers Abu Dhabi, UAE

### Services:

- › Automation
- › Communications
- › Electrical
- › Fire Protection
- › Hydraulics
- › Mechanical
- › Security
- › Vertical Transportation

### About the project:

The Etihad Towers design team led by DBI Design won a world-wide competition in the face of some stiff opposition, with the project posing a range of unique challenges. The development features five iconic towers, some 300 metres high, with a total built area of 492,084 sq m. Also included is a 72 storey five star hotel with 401 hotel rooms and 192 serviced apartments operated by Jumeirah Hotel Group.

### Features and Innovations:

In addition to the hotel, there are also four underground car parks (133,000 sq m), three residential towers with 893 apartments and a 59-storey office tower with 50,000 sq m nett lettable area. There are five podium levels consisting of two levels of retail shopping and three levels of hotel facilities including swimming pools, eight restaurants, health facilities, convention centre, business meeting areas and a grand ballroom.

“

The development features five iconic towers, some 300 metres high, with a total built area of 492,084 sq m.

”





Residential Australia

## The Park House 627 Victoria Street, Melbourne, VIC

### Services:

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

### About the project:

The Park House residential development comprises two, nine storey buildings delivering over 530 luxurious riverfront residences for the Yarra Gardens Precinct.

Adjacent to the Yarra River, the architectural vision of spacious and light filled apartments maximises on river views and the building's lush natural surrounds.

Floor to ceiling windows in communal spaces further encourage an interaction with nature, with amenities including a large heated pool and spa; a library, lounge and fireplace; a courtyard with landscaped trees and gardens; and a cinema, children's play room, gymnasium, swing golf simulation room and bike workshop.

NDY were engaged for the project's design and construction phases, with our building services design delivering a level of flexibility where purchaser variations across the one, two and three bedroom apartment configurations required a customised approach. Helping our client achieve project outcomes, we provided technical solutions and construction alternatives; for example, when a single purchase required two apartments be merged into a single residence.

With the development in close proximity to the Yarra River, significant liaison with the project's civil engineer and relevant authorities enabled us to define an appropriate drainage strategy and achieve regulatory approvals.

Sustainable living is an important focus for the precinct, and the design utilised strategies including rainwater harvesting, solar photovoltaics (PV), electric vehicle charging points and variable refrigerant flow apartment air conditioning. The development is anticipated to achieve an average NatHERS energy efficiency rating beyond the code requirement for a 6 star average.

With the precinct playing host to community plazas, retail frontages and both walking and bike paths, the area is designed to encourage social and environmental integration, providing a premium lifestyle and refuge from today's hectic city lifestyle..





Mixed Use Australia

## Tooronga Village Redevelopment **Melbourne, VIC**

### Services:

- › Electrical
- › Fire
- › Hydraulics
- › Mechanical
- › Security
- › Specialist Lighting Review
- › Vertical Transportation

### About the project:

NDY was engaged to provide building services engineering input on the \$450 million redevelopment of Tooronga Village, a prime retail, commercial and residential site 7kms South East of Melbourne's CBD.

The two apartment towers above the podium contain a total of 215 apartments. The 'Crescent Tower' closest to Tooronga Road has 8 levels of apartments. The 'Toorak Tower' closest to Toorak Road has 10 levels of apartments.

### Features and Innovations:

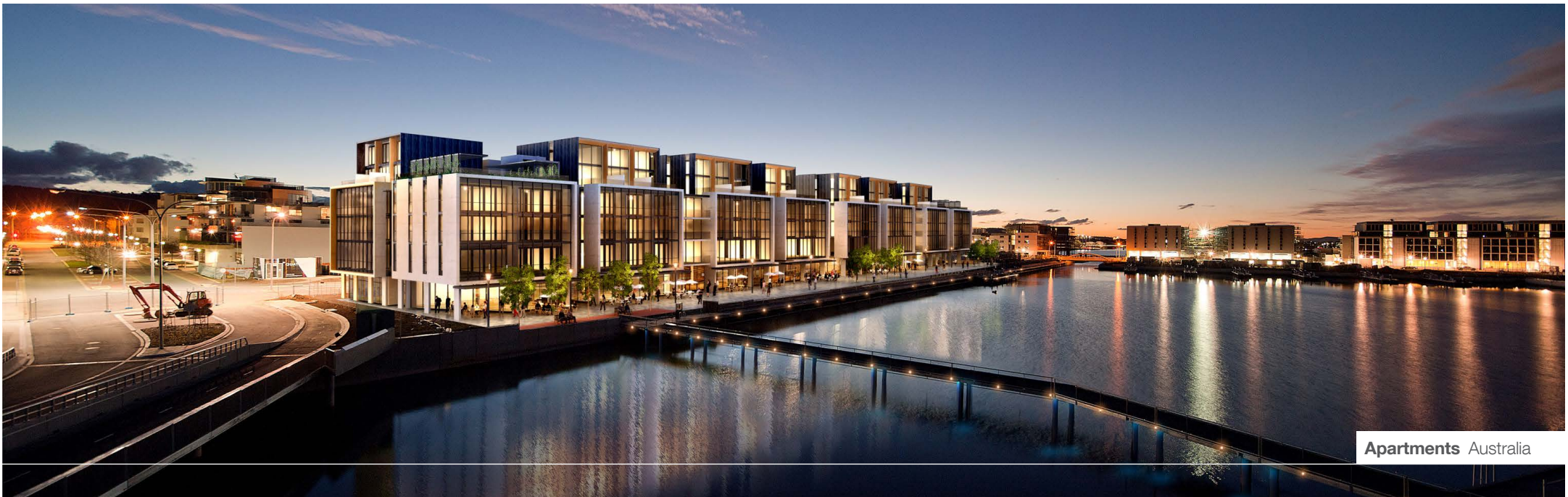
The project, by Stockland, is a high quality mixed-use staged development comprising:

- › 543 apartments and boutique townhouses
- › a new Coles supermarket and 1st Choice Liquor
- › 20 speciality tenancies
- › expansive public podium encompassing a restaurant and gym
- › approximately, 5,800 sq m strata title offices
- › 500 space staff car park.

“

The two apartment towers above the podium contain a total of 215 apartments.

”



Apartments Australia

## Element, Kingston Foreshore **Canberra, ACT**

### Services:

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

### About the project:

NDY were engaged to assist the design of a new 5 storey apartment building comprising:

- › 160 apartments
- › Mixed use ground and first floor
- › 3,700 sq m basement carpark

The \$35 million project is located on the exclusive Kingston Foreshore. The development also features waterfront restaurants and cafes along the promenade.

### Features and Innovations:

- › A key component to the success of the project is the utilisation of car stackers in the basement removing the need for a second basement.
- › The NDY design solution incorporated architectural and fire engineering solutions, achieving a cost effective building solution for Englobo.
- › The project sets itself apart from other developments in the area with the use of winter gardens and exposed concrete ceilings which required careful coordination in the design phase.

“

The NDY design solution incorporated architectural and fire engineering solutions, achieving a cost effective building solution for Englobo.

”





Mixed Use Australia

## Capital Grand South Yarra, Melbourne, VIC

### Services:

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

### About the project:

Located on the iconic crossroads of Toorak Road and Chapel Street, this prominent new residential and retail development brings a new level of urban luxury to one of Melbourne's most desirable precincts.

This prestigious development comprises of two towers; Capitol Grand and LK Tower located above two levels of high end retail and five levels of basement car park.

The curved facade of Capitol Grand houses nine levels of residential apartments, along with a large amount of retail space. LK Tower consists of 50 levels of residential apartments, plant areas and luxurious penthouses, some of which feature a spectacular 360 degree view of the city. Both towers are located over the main podium garden and two levels of luxury retail.

The development consists of:

- › Capitol Grand Tower:
  - › 10 levels
  - › 97 apartments
  - › Residential amenities
  - › 5,600 sq m of retail
  - › 5 levels of basement car parking.

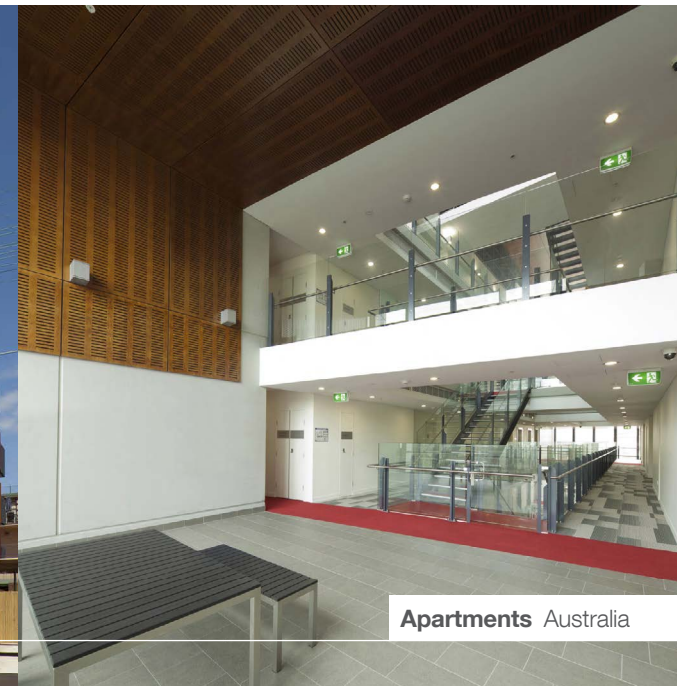
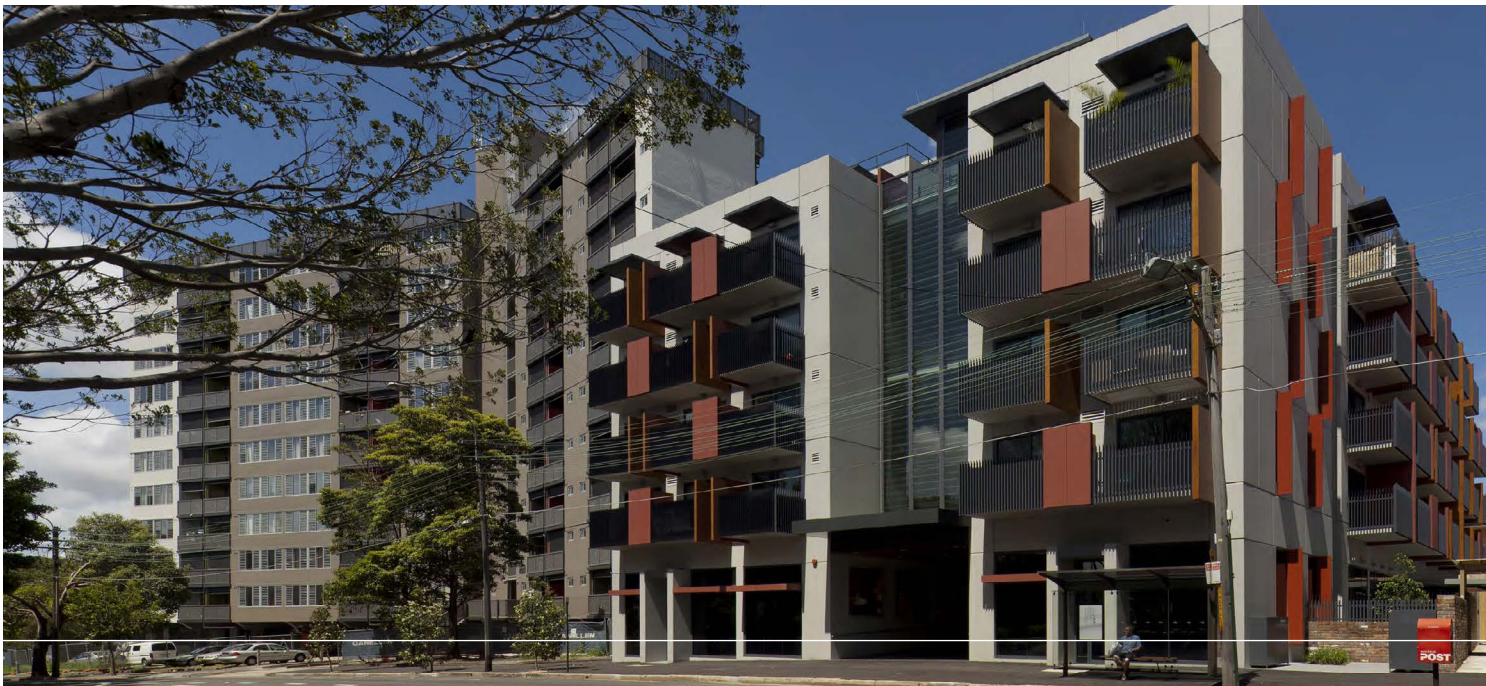
LK Tower:

- › 50 levels
- › 408 apartments
- › Residential amenities.

“

A new level of urban luxury to one of Melbourne's most desirable precincts.

”



Apartments Australia

## Common Ground Sydney (The Camperdown Project) Sydney, NSW

### Services:

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

### About the project:

The Camperdown Project is a residential development based on the Common Ground model, which provides housing and support services to the long-term homeless and low income tenants.

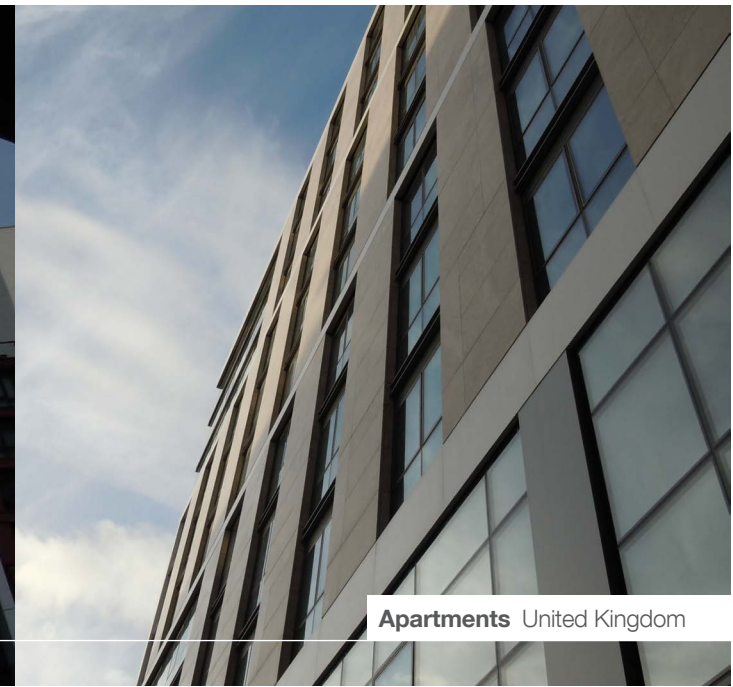
The development consists of a six level residential building containing 104 apartments. The building accommodates onsite tenant support services including medical, training and counselling facilities, offices, tenant utility rooms, and a social enterprise centre.

### Features and Innovations:

- › The project was designed to achieve a 5 Star Green Star design rating, whilst also delivering a low capital, low maintenance, low operating cost solution. To that end, the residential area of the building is naturally ventilated and additional ESD features include a solar hot water system, and fire water system capture and re-use. The project was awarded its 5 Star Green Star rating in 2012.
- › A unique aspect of the design was the use of 3D Revit modelling throughout the design phase. This allowed full coordination of all services with the structural and architectural designs during design, and delivered a design that was far more advanced - at the time of trade contractor appointment - than a traditional 2D drawing approach. This modelling approach also allowed concepts to be proposed and visually reviewed by the entire project team throughout the design phase, resulting in tangible construction cost savings.

“ The use of 3D Revit modelling...allowed concepts to be proposed and visually reviewed by the entire project team throughout the design phase, resulting in tangible construction cost savings. ”





Apartments United Kingdom

## 4 Merchant Square London, England

### Services:

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

### About the project:

NDY acted as building services engineers and fire safety consultants for this 197 unit private residential development for client Paddington Development Corporation Limited. Constructed as part of the Merchant Square mixed use development, the building includes 44 affordable apartments.

### Features and Innovations:

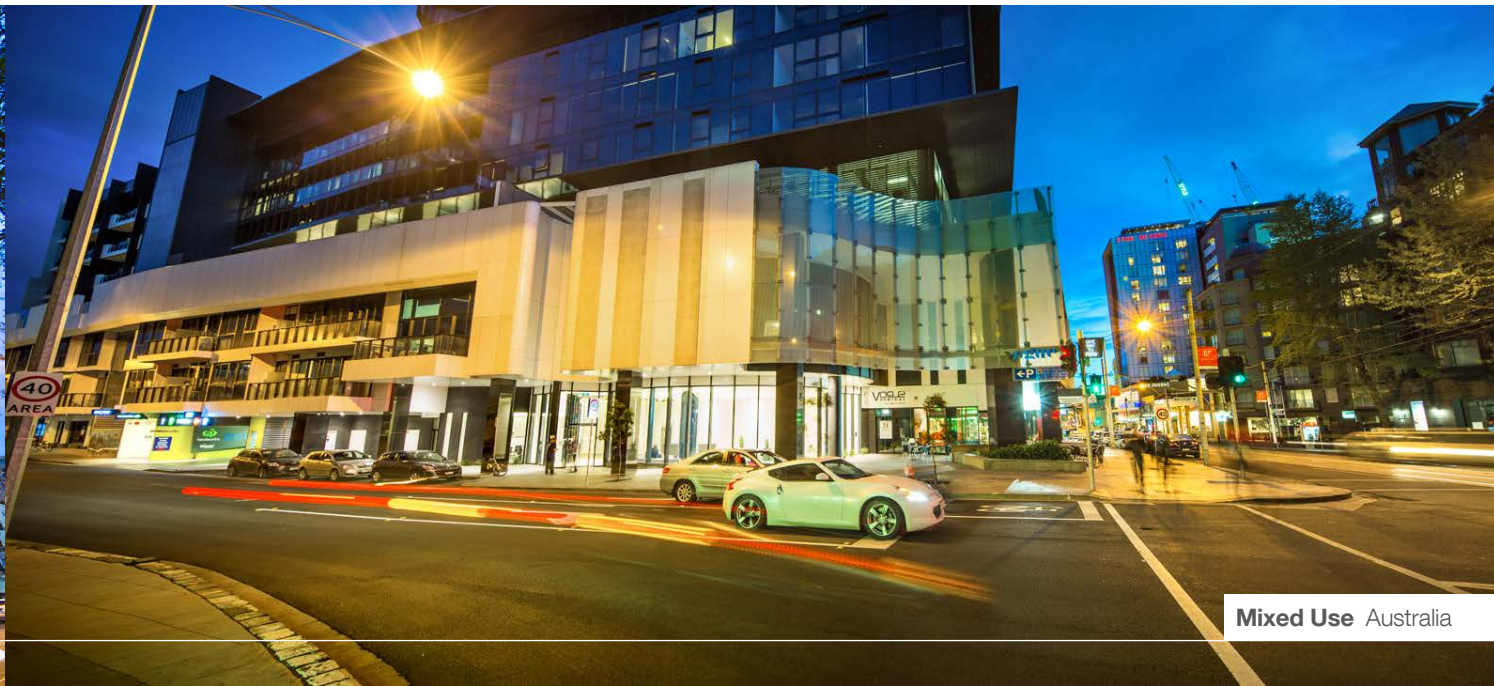
- › Working closely with Kalyvides Partnership, NDY was able to achieve Code for Sustainable Homes Level 4 rating for the development. Key sustainability features incorporated within the engineering services design include rainwater recycling and the use of combined heat and power as part of a distributed sitewide system adopted across the estate.
- › 4 Merchant Square includes standalone power and heating plant, designed to allow future connection to a site energy network. Once other buildings on the site are completed, the fully integrated network will allow energy sharing between office and residential buildings, resulting in carbon emission reductions in excess of 25 per cent beyond Part L (2006).
- › The development of an integrated metering strategy to satisfy the needs of the appointed private energy supplier was an essential element in the success of the overall approach.



4 Merchant Square includes standalone power and heating plant, designed to allow future connection to a site energy network.







Mixed Use Australia

## Vogue South Yarra Melbourne, VIC

### Services:

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

### About the project:

Synonymous with style, Chapel Street is a destination for all Melbournians and a much sought-after address for both business and residents.

In the heart of this prestigious locale, Vogue South Yarra is a landmark project developed by The Stamoulis Property Group. With architecture by Buchan Group and project management by The Harris Corporation, the project is a significant addition to South Yarra.

### Features and Innovations:

- › As a mixed use development, Vogue South Yarra combines speciality retail, a new Woolworths supermarket and Big W department store with more than 500 apartments, as well as extensive basement car parking for more than 1000 cars; catering for both business and the general public.

“

Completed in 2011, Vogue South Yarra is an iconic addition to the vibrant commercial and residential Chapel Street precinct.

”





Residential Developments New Zealand

## Orakei Bay Village Auckland, New Zealand

### Services:

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

### About the project:

The Orakei Bay Village site is an exciting location with magnificent ocean views across Orakei Bay. This \$300 million residential development will offer high-end apartments within close proximity to public transport, retail and dining opportunities.

The site will be partially located above the rail corridor with basement car parking and over 15 separate buildings containing a mix of retail and residential apartments.

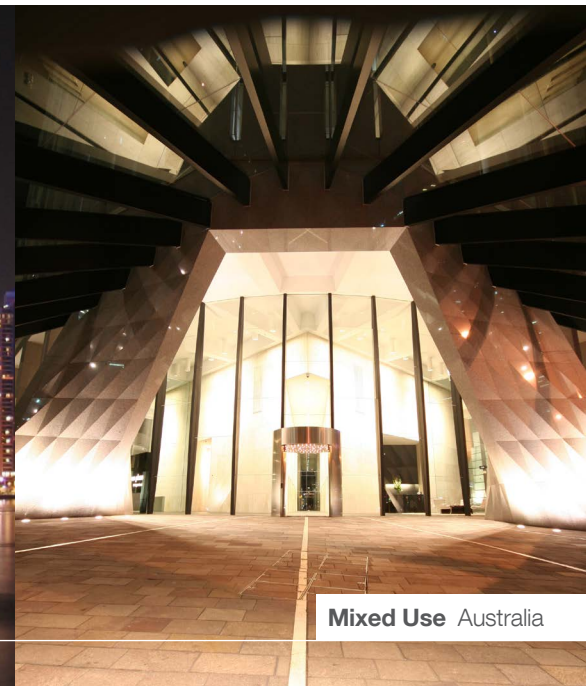
### Features and Innovations:

- › High-end food and beverage tenancies aimed at maximising the location
- › Acoustically designed apartments that will provide quiet amenity to the residents
- › High quality internally fitted apartments catered to modern lifestyles
- › Village atmosphere aimed to enhance community engagement and connection with the surrounding marine environment.

“

This \$300 million residential development will offer high-end apartments within close proximity to public transport, retail and dining opportunities

”



Mixed Use Australia

## Riparian Plaza Brisbane, QLD

### Services:

- › Communications
- › Fire
- › Electrical
- › Hydraulics
- › Mechanical
- › Security
- › Vertical Transportation

### About the project:

One of Brisbane's tallest buildings is outstanding in a number of aspects ranging from the architecture to the sophisticated services design. The building was designed to be the best in all aspects of its design and this was achieved surpassing all existing Brisbane CBD buildings at the time.

Riparian Plaza is a 53 storey building consisting of car park, commercial office and apartment levels. With its location adjacent to the river no space has been provided below water level. Consequently the office and apartment car parking is provided on levels 1 to 11.

The striking design of the building changes from car park to office and office to apartment levels to provide a dominant structure unequalled by any other Brisbane building.

### Features and Innovations:

- › The entry foyer is approximately 10 metres high and the car park levels are accessed via an external helix so that there is no interference to the entry foyer.
- › Levels 14 to 38 contain commercial office space while levels 41 to 52 are the apartment levels. Plantrooms are contained on levels 12, 13, 40 and 53 while level 39 contains a gym and an indoor/outdoor pool.

### Awards:

2008 Property Council of Australia/RLB Innovation and Excellence Awards

- › **Innovation and Excellence Awards** - Overall Winner
- › **Mixed Use Development** - Winner

2007 Royal Australian Institute of Architects (RAIA) Awards

- › **National Award for Commercial Architecture** - Winner
- › **Brisbane Regional Commendation**

“

All services are built to be state of the art, flexible to suit future technological advances, and environmentally sound.

”





Residential Developments Australia

## The Peninsula Perth, WA

### Services:

- › Electrical
- › Fire Engineering
- › Hydraulics
- › Mechanical

### About the project:

Located adjacent to Burswood Park, the Swan River and the Burswood Casino complex, Mirvac's Peninsula development will ultimately comprise around 1250 apartments, townhouses, walk-ups and houses. The overall site includes public amenities, a day spa, cafés, restaurant and a sales office.

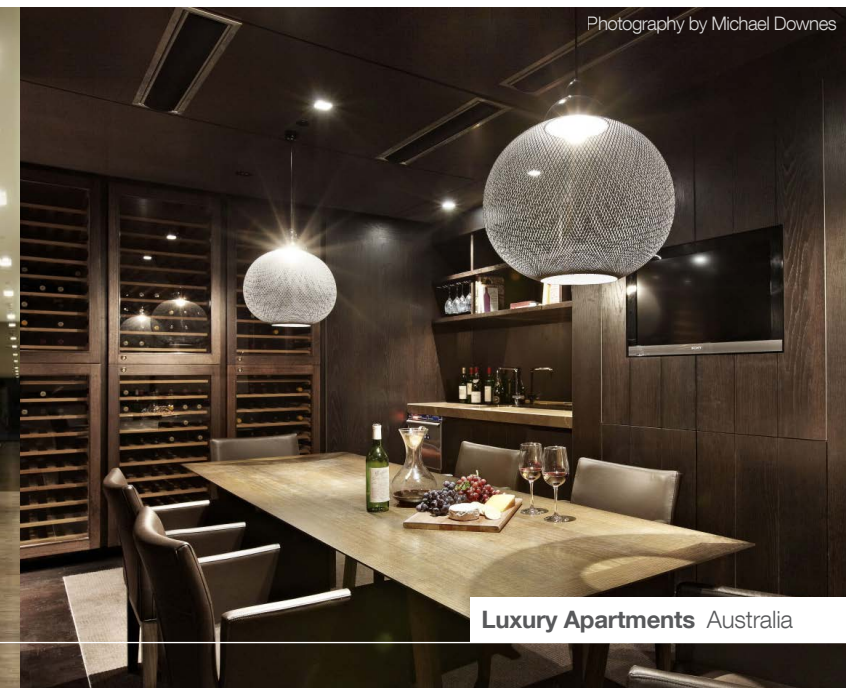
NDY have provided fully integrated designs for mechanical, electrical, hydraulics and fire engineering services to Towers 1, 2 and 3 (17, 18 and 15 floors respectively), as well as for Lots 23 and 24 (five floors each with two car park levels and a shared swimming pool). NDY also provided electrical designs for Tower 5.

### Features and Innovations:

- › Each tower operates on a centralised condenser water loop for serving energy efficient water cooled package units to each apartment.
- › As part of the fire engineering service, NDY designed a centralised plant room, pump and tank system with ring main loop to provide fire water services to the towers.
- › NDY's multi-discipline design approach and 3D CAD technology are simplifying coordination with architectural and structural elements, and are realising highly efficient use of plant and riser space.
- › All towers have their own pool design, a two level car park with ventilation to meet AS 1668 code requirements and penthouses on the top two floors.

“NDY's multi-discipline design approach and 3D CAD technology are simplifying coordination with architectural and structural elements, and are realising highly efficient use of plant and riser space.”





Photography by Michael Downes

Luxury Apartments Australia

## 150 Clarendon Street Melbourne, VIC

### Services:

- › Architectural lighting (NDYLIGHT)
- › Electrical
- › Fire Protection
- › Hydraulic
- › Mechanical
- › Vertical Transportation

### About the project:

150 Clarendon Street is a prestige residential development in East Melbourne comprising 86 luxury apartments overlooking the Fitzroy Gardens. This prestigious 6 Star residential development sets new benchmarks in Australia for high-end residential projects.

The 12 storey development includes 86 apartments with club facilities, a private cinema and a conference and meeting room with state-of-the-art multimedia and video conferencing facilities.

NDY worked closely with architects Bates Smart and Salta Properties to convert the old Mercy Womens Hospital building to become a new stunning addition to East Melbourne.

### Features and Innovations:

- › Challenges included working and understanding the limitations of the existing structure as well as providing optimum ceiling height within the apartments.
- › Luxury hotel-type amenities include a 25-metre swimming pool, a gymnasium with a sauna, steam room and massage room and a secure 10,000-bottle wine cellar capable of hosting tastings and functions.
- › The lifts are specially programmed to provide privileged access direct to the penthouse residents on Level 11 and 12.

“

This prestigious 6 Star residential development sets new benchmarks in Australia for high-end residential projects.

”





## Flow Apartments **Brisbane, QLD**

### Services:

- › Electrical
- › Communications
- › Fire Engineering
- › Mechanical
- › Security

### About the project:

Located in the prestige inner suburb of West End, Flow Apartments involves 8 “terrace-style” townhouses (3 & 4 bedrooms over 2 storeys) to the riverfront boundary with a 7 storey apartment building located on the rear street boundary facing the Brisbane river.

A large open space between the houses and the apartment building offers recreational spaces including reflection and heated swimming pools, a large sub-tropical courtyard garden complete with sun lounges and public barbecue area, a 10 seat theatre and well equipped gymnasium. The houses, apartment building and recreational spaces sit over a common two level basement car parking area.

### Features and Innovations:

- › The level of building service and design for the residences varied between three occupier types with a high level of service and finish the town houses, a similar provision to river view apartments and a investment style finish to the street view apartments within the apartment building.
- › The services design was challenging as the developer maintained tight control over the budget while the architect strived for aesthetically pleasing finishes to all elements including the building services. This required the design of the building services to be smart, yet cost effective.

### Awards:

- 2008 RAlA Queensland Regional Architecture Awards
- › **Residential Architecture Multiple Housing Award** - Winner
  - › **Residential: Multiple Housing** - Regional Commendation

“

The level of building service and design for the residences varied between three occupier types...

”





## 1 Macquarie Street **Brisbane, QLD**

### Services:

- › Architectural Lighting (NDYLIGHT)
- › Communications
- › Electrical
- › Mechanical
- › Security
- › Vertical Transportation

### About the project:

This prestigious address offers absolute river frontage with unobstructed views up and down the Bulimba Reach of the Brisbane River. The four building complex comprises 36 boutique apartments set over a common basement parking area.

The complex boasts a fifteen berth private marina, lap pool, secure underground parking, intercom security, rain water tanks, gymnasium and onsite manager.

### Features and Innovations:

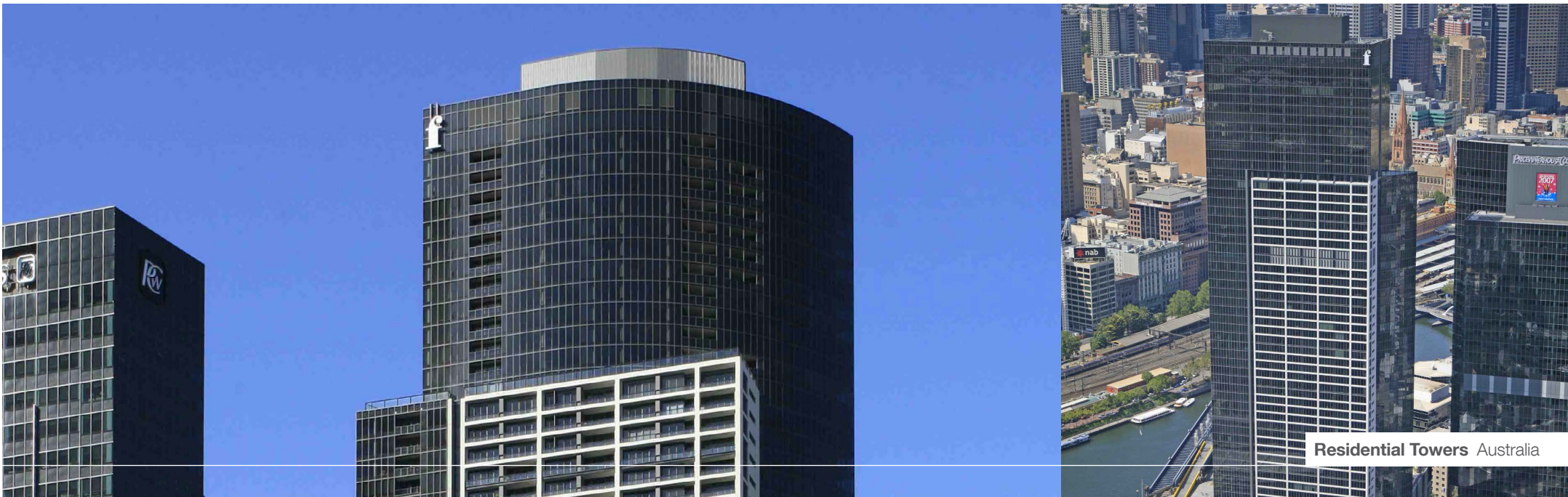
- › The services design was challenging, with the majority of owners electing to customize their apartment's layout and appointment. The services were required to be commensurate with the high quality finish and were individually tailored to meet the exacting standards of their owners.
- › All apartments are fully air-conditioned, and possess their own structured cabling system. An intelligent lighting system was used in both apartments and the services areas to minimize power usage. Audio visual systems were integrated into several of the apartments.
- › The project also involved several unique 'one off' services design aspects, including air-conditioning for a walk-in wine room, gallery lighting for illuminating artwork and a home-cinema room.

“

The services design was challenging, with the majority of owners electing to customize their apartment's layout and appointment.

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## Freshwater Place Melbourne, VIC

### Services:

- › Audio visual
- › Communications
- › Electrical
- › Fire Protection
- › Hydraulic
- › Mechanical
- › Specialist Lighting (NDYLIGHT)

### About the project:

The residential tower building associated with the Freshwater Place development comprises 60 levels of predominantly apartment space with retail and car park facilities in the lower podium levels.

The building is divided into a basement public car park, ground level apartment foyers and retail, podium levels 1–9 perimeter apartments and residents car park/storage areas, low rise level 11–39 apartments and high rise level 41–59 apartments. podium level 10 contains the pool and spa area, gym, function rooms and landscaped external terrace garden.

Level 40 of the mid rise contains further sport and leisure facilities including a salt water pool and spa, gym, media lounge and plantroom areas associated with the mid rise levels.

### Features and Innovations:

- › A rainwater harvesting tank is provided on level 10 to collect rainwater runoff for use in irrigation of the level 10 terrace garden.
- › The plantroom areas contain air handling plant, exhaust systems and the mid level sub station and switchroom.
- › Level 60 accommodates the thermal plant, emergency generator plant and domestic water storage plant. A dedicated thermal plant area is also provided in the podium to serve the retail areas on the ground floor.
- › Plantroom areas are also located at basement level and contain the sub station and switchroom serving the lower levels together with the building communications room for telecommunication services.

“

The Freshwater Place development comprises 60 levels of predominantly apartment space with retail and car park facilities.

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