

CASE STUDY

Bigge Street, Liverpool



Better fit
The project demonstrates contextual and contemporary architectural design for urban infill

All photographs: Brett Boardman Photography, unless stated otherwise

A social housing model for the future, this is an exemplar of a new and collaborative method of procuring social housing, delivering design quality and equitable living

QUICK FACTS

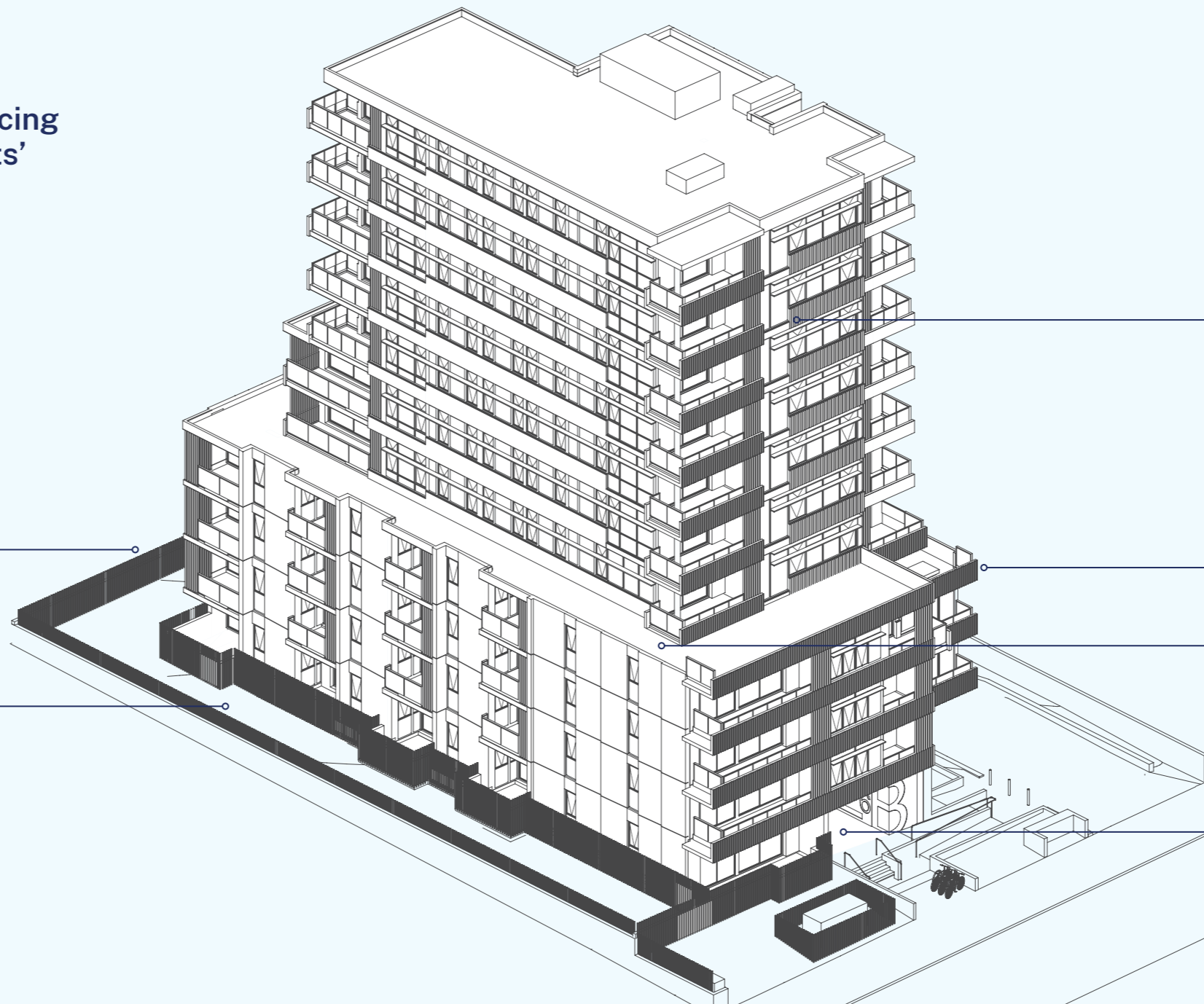
APARTMENT BUILDING TYPE: Tower and podium	PROJECT TEAM: ARCHITECTURE TURNER LANDSCAPE ARCHITECTURE Loci Design Collective BUILDER Hutchinson Builders ACOUSTIC Acoustic Logic Consultancy
LOCATION: Warwick Farm, Liverpool NSW	ENGINEER ADG Engineers
COUNTRY: Dharug and Dharawal	PLANNER City Plan Services
LOCAL GOVERNMENT AREA: Liverpool City Council	WASTE MANAGEMENT Elephants Foot ACCESS Morris Goding Access Consulting
PROJECT COST: \$28 million	MECHANICAL, HYDRAULIC, ELECTRICAL, BUILDING SERVICES Northrop Consulting Engineers
CLIENT: Homes NSW	PROFESSIONAL SERVICES Oracle Aconex FACADE Precast Elements
PROJECT DATA: Site area 1,757 m ² Floor space ratio 2.22:1 52 apartments 11 storeys 24 carparking spaces 20 bicycle parking spaces	HORTICULTURE Redgum Horticultural PROJECT MANAGEMENT RP Infrastructure SUSTAINABILITY Wood and Grieve Engineers
PROCUREMENT: Design and construct	
YEAR: Completed 2022	
AWARDS: 2023 AIA NSW, Premier's Prize, Winner 2023 AIA NSW, Residential Award for Multiple Housing 2023 UDIA NSW, Award for Excellence in Affordable Housing	



The Bigge Street apartment development skillfully meets the Homes NSW brief requirements for projects that focus on the long-term performance of the building, reducing maintenance costs and meeting the residents' diverse and sensitive needs

The planning rationale for common spaces and deep soil carefully considered the existing lemon gum tree protection zones at the eastern adjoining property

Ground level landscaping surrounds the building with varied spaces for gathering and relaxation, defined by the use of materials, seating and planting



The character and materiality of the project is driven by long-term performance; durable material selection included precast concrete facades and limited rendered and painted surfaces

The precast concrete wall panels have a vertical rib and fluted pyramid pattern which ensures water run-off will build up a compatible surface patina as the building ages

Set back from the 4-storey podium, the narrow 6-storey tower respects the surrounding setbacks and adjacent buildings

The lobby is distinctly identifiable from the street and features an oversized address imprinted into the precast panels

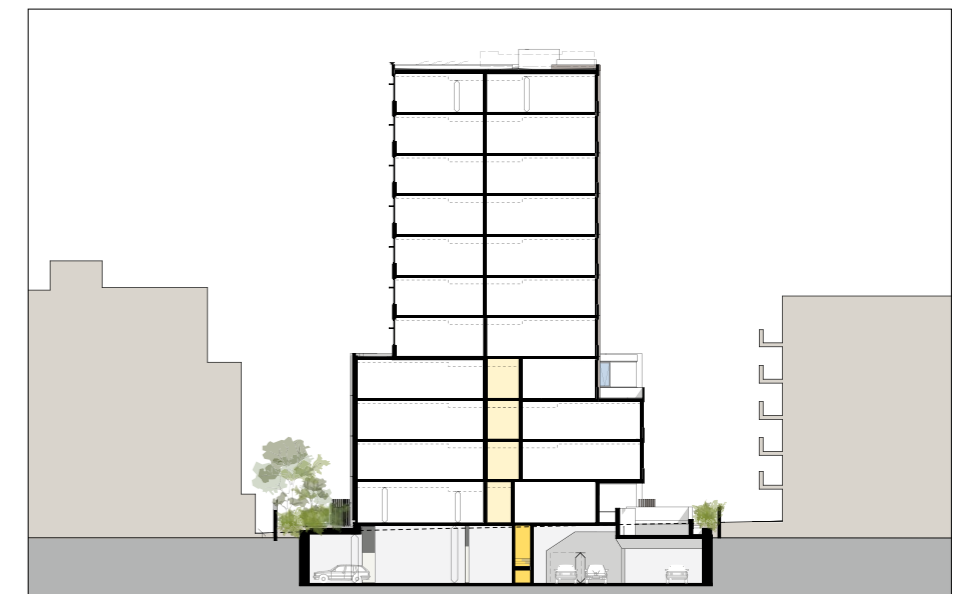


Ground floor plan

0 2 5 10M



North elevation



Section

0 5 10M 20M



Delivered by Homes NSW, this 10-storey social housing development is located in Warwick Farm, north of Liverpool

‘It’s perfect. It’s our pride of place’

— Bigge Street tenant

Vision for housing

Homes NSW strives for excellence in architecture, design and service delivery, through best practice, innovation and being informed by lived experience.

The aim is to deliver both high-quality and cost-effective design outcomes that meet residents’ diverse and sensitive needs. The vision is to provide housing that is fit for its context and that residents are proud to call their home.

Bigge Street is enjoyed by its residents and is recognised within the community as an outstanding place to live. It has successfully balanced amenity, cost and long-term performance by achieving a high standard of architectural design.

Project design brief

The Homes NSW good design goals for social housing include; wellbeing, belonging, value and collaboration. This aligns with the aspirations of Homes NSW key stakeholders: tenants and the communities where they live; public and private sector delivery partners (including designers, councils, consultants, developers, social housing and services providers, and other agencies); and the NSW Government. Building on these goals the Homes NSW design brief for this project outlined 5 key objectives: to design robustly, efficiently, for value, to be legible and to be equitable.

Understanding the context

The site is located 400 m north of Liverpool City Centre in the suburb of Warwick Farm, a dynamic and evolving hub in Western Sydney. The site is surrounded to the north, east and south by 6-storey apartments and a tall 15-storey residential flat building with 188 units to the west.

A significant percentage of the social housing resident demographic is over the age of 55, highlighting the need to design for seniors and ensure walkable access to local amenities. The Bigge Street project provides a blueprint for modern new social housing. The development is well connected to transport and services. It supports a 5-minute walk to Warwick Train Station, a 1-minute walk to Hume Highway bus connections and a less than 10-minute walk to the Liverpool shopping centre and hospital.

The building was constructed on a vacant site with relatively flat topography. Key challenges included below-ground service lines running centrally across the site and existing low levels of solar access to the surrounding apartments. This required careful siting and planning along the development’s 34 m street frontage and 51 m lot depth.

Design and construct procurement

Bigge Street responds to the urgent need for more social housing in New South Wales, particularly in Liverpool, where the waiting time for social housing exceeds 10 years. As of February 2024, more than 2,250 people are on the social housing wait list in the Liverpool area. Homes NSW project drivers included funding, market expertise, innovation and risk management. It was important for the project to be delivered cost effectively and to be built efficiently. This led Homes NSW to select a Design and Construct procurement model where the architect and builder were appointed through a competitive process that included early design submissions.

This model enabled effective collaboration between the client (Homes NSW), the architect and the builder. For example, early conversations at project inception stage informed the decision to use innovative precast concrete technology.

This allowed the builder to develop precast concrete design solutions within a risk-managed contract model, leading to time efficiencies. The project was completed in 18 months from the start of construction, including 3 months of delays due to wet weather and COVID lockdowns.



Robust and highly articulated
The building expression is urbane and confident with well-articulated vertical precast concrete panels

An evolving urban precinct
The site is well connected with walkable distances to surrounding transport, shops and services

‘The precast concrete was a major decision at the project inception with both architect and builder; it helped us to be innovative’

— TURNER



Functional and light
The open-plan kitchens are filled with natural light and fresh air, with large sliding doors connecting the kitchen and living space to the balcony



A social housing model for the future designed and built with 5 leading principles – the project is robust, efficient, value-adding, legible and equitable

Wellbeing: connection to nature
The balconies create an outdoor room, shaded and connected to views of the horizon and surrounding trees

Achieving good value

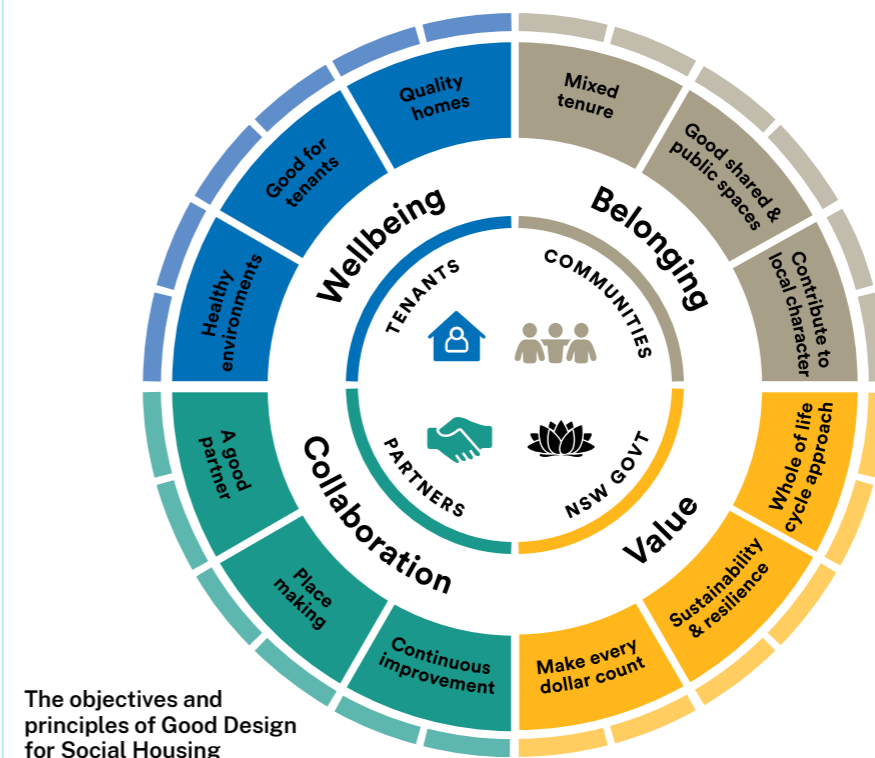
The original development application scheme yielded 44 units, which could be achieved within the council's permissible planning controls. Through a modification to the DA and iterative solar testing, TURNER was able to increase the total number of dwellings to 52 units.

Through the design process, the design team skillfully maximised the number of social housing dwellings while also ensuring the development responds to its urban and heritage context in scale and character. The form is contemporary and adds ongoing value to the emerging neighbourhood by contributing to the quality of the street environment.

ARCHITECT'S STATEMENT

'It may have cost the same to construct as comparable private apartments, but the apartments have been built to last, will cost less to run, and will age well. [The precast concrete exterior cladding] is meant to get dirty'

— Stephen Cox, TURNER



The objectives and principles of Good Design for Social Housing

Homes NSW design objectives for social housing



Value

Making every dollar count, considering the whole project life cycle, and making sustainability an integral priority



Collaboration

Continually improving, supporting place making and establishing good partnerships



Belonging

Supporting mixed tenure, providing good public spaces, and contributing to local character

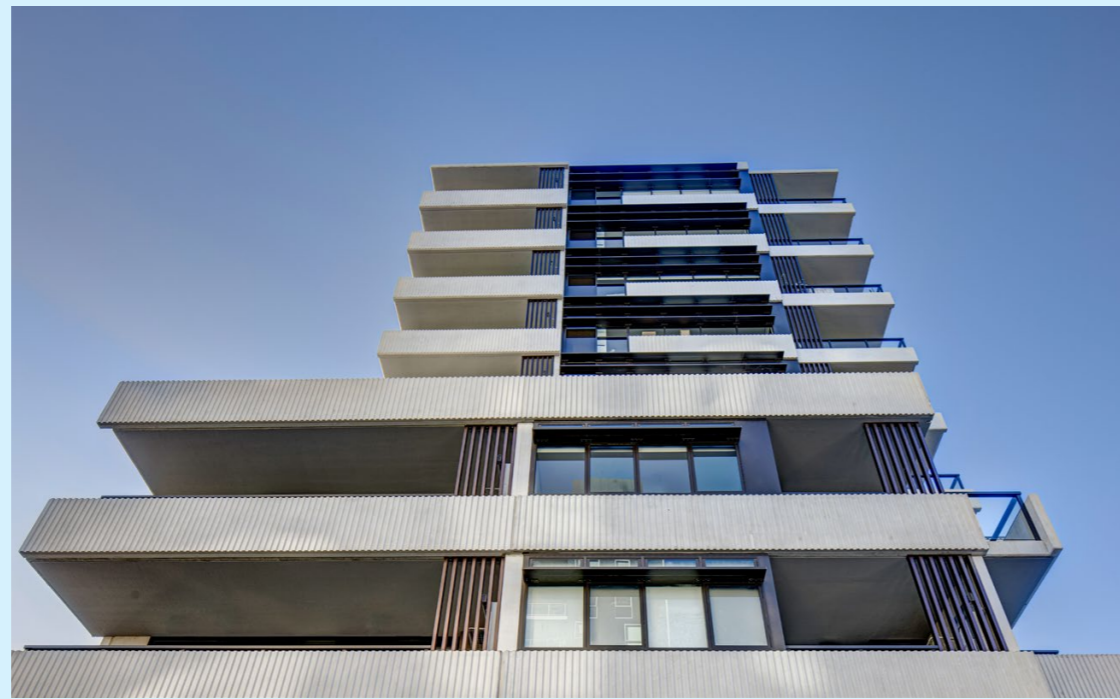


Wellbeing

Delivering housing that is healthy, good for residents and high quality

These objectives were achieved through:

- early design submissions
- good partnership between client, architect and builder
- innovation in new material technology



Structure as one
Balustrades, shading and fenestration are part of the building structure, negating the need for 'add-on' items

Gracefully ageing patina
The vertical-fluted concrete facades are designed so the inevitable residue from water run-off will complement the surface quality of the panels as the building ages

Legible entry and street address

The main entrance is designed to create a sense of certainty for residents and visitors. It is formal and obvious, with the street address imprinted into the precast facade at large scale, elegantly integrating wayfinding with the built form. The large-scale lettering emphasising 'Bigge Street' creates a sense of fun and playfulness, contributing to a feeling of belonging.

Colour influenced by native flora and fauna has been used to articulate details and contribute to orientation. Waratah flowers, reds and greens are incorporated at different scales, from the main entry soffit to small details at individual front doors, with signage and coloured walls directing residents and visitors through the building.

Robust materials for the long term

The character and materiality of this project is driven by simplicity and long-term performance. Durable material selection included precast concrete facade panels and minimal use of painted surfaces.

Precast concrete panels enable efficient construction by being fast to assemble on site. They also allow for textured exterior surfaces. The precast concrete has a vertical rib and fluted pyramid pattern so that residue from ongoing water run-off will enhance the appearance of the panels, creating a patina as the building ages. Precast concrete panels have been used for party walls and facades, with a subtle variety of light coloured surface finishes complimenting the urban character.

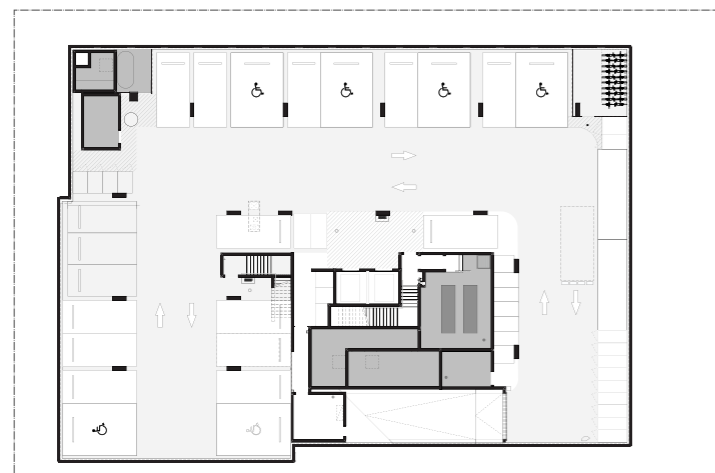
Efficient use of resources, saving on bills

Water-efficient and energy-efficient fittings, appliances and lighting were thoughtfully selected to promote sustainability and reduce tenant household bills. Rather than having to rely on tumble dryers, clothes drying racks have been provided, screened from the street to conceal personal items from public view. The racks are incorporated into the building design as an integral, functional element. Provision has also been made for the installation of air conditioning units at a later date if required.

All the apartments are fitted with ceiling fans and blinds, and these have received positive feedback from residents over the first 12 months of use throughout summer and winter. In the summer the thermal heat gain is reduced by triple sunhoods on the west elevation, integrated into the facade design, and single-hood shaded glazing on the north.

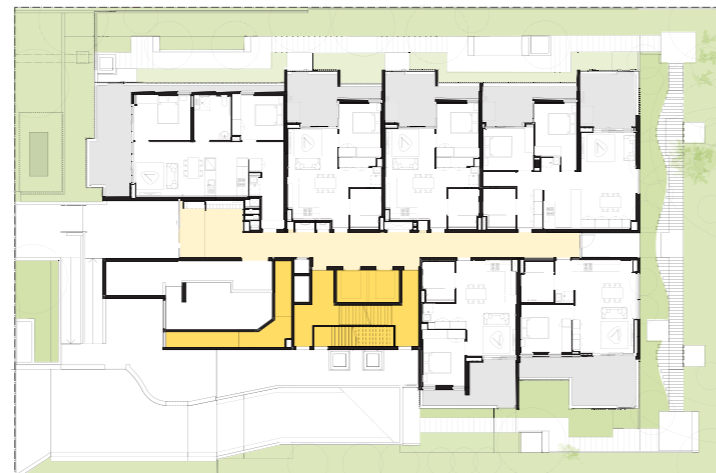
'The lobby is distinctly identifiable from the street; it features an oversized address imprinted into the precast panels'

—TURNER



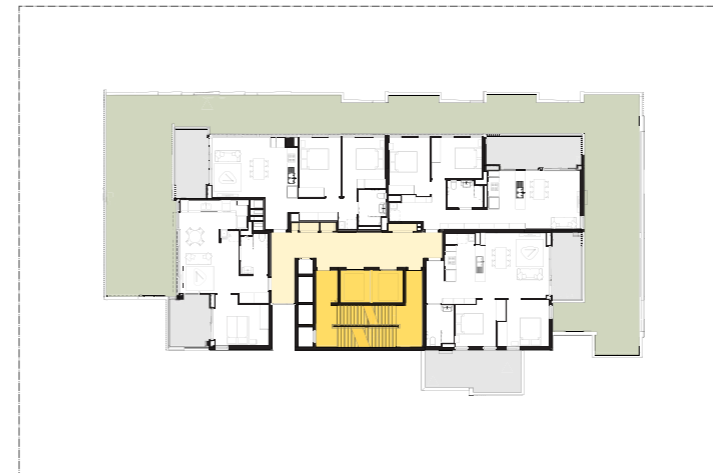
Basement floor plan
Basement

012 5 10M



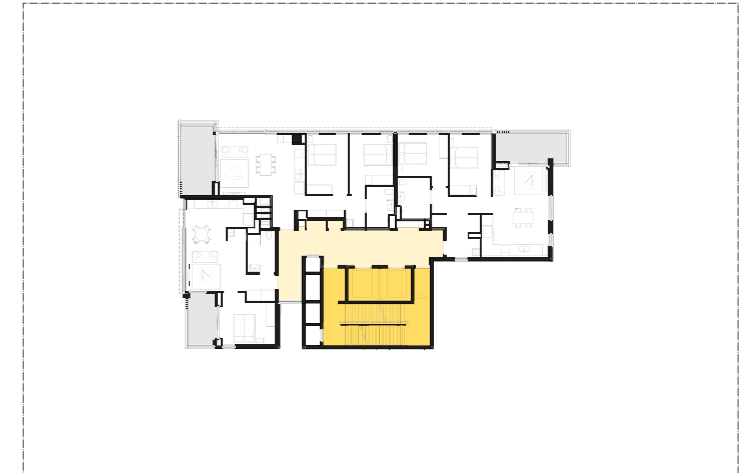
Ground floor plan

012 5 10M



Mid-level tower floor plan

012 5 10M



Upper-level tower floor plan

012 5 10M



Designing for wellbeing

Integrated balconies and solar shading contribute to the apartments' amenity and comfort. All apartments respond to their outlook, with many enjoying horizon views or a visual connection to the greenery provided by the existing mature Lemon Gum Tree on the neighboring property.

The interiors have a softer quality than the exterior, featuring coloured highlights and plenty of storage. The ground-floor landscaped areas and communal open spaces cater to the diverse needs of the residents with small seating spaces located along access pathways and through communal gardens for senior residents to stop and rest. Overall, the strong form of the architecture and its refined palette of materials create a handsome building that the occupants and neighbourhood are proud of.

Equitable by thoughtful and cost-conscious design

Homes NSW has rigorous standards for construction and maintenance. Materials and detailing must have a high level of finish and be built to last, reducing the cost of ongoing maintenance and investing in the long-term future of the development. This is evident in many details, including for example the high-quality timber laminate and joinery detailing used in the kitchens.

Of the 52 apartments delivered, 12% (6) meet Australian Adaptable Housing Standards, meaning these are capable of being adapted for people with all levels of mobility. Thoughtful design includes details like providing for a level transition from interior spaces to the balconies. This meets mobility requirements and also contributes to a seamless flow between spaces and functions.

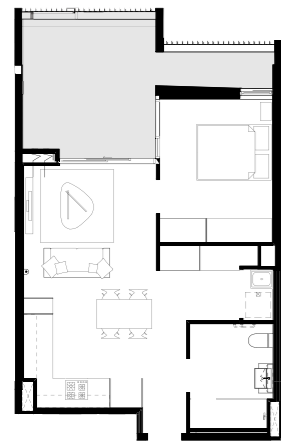
Equitable design also includes measures such as providing generous storage space in the apartments, and providing outdoor places for social gathering that feel safe and welcoming due to informal passive surveillance.



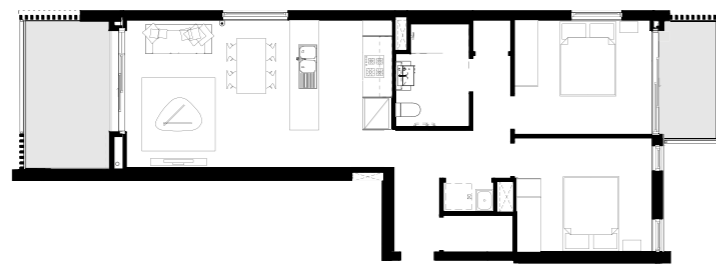
Lobby interior
Warm finishes that are welcoming for residents

'The interiors feature a natural colour palette inspired by local fauna and flora. Pops of reds and greens are used as a highlight throughout the building. For example, the red of the soffit continues to become the interior theme of the lobby. This is further encapsulated in the integrated signage system that runs from the precast building ID through to individual apartment numbers'

—TURNER



1 bedroom LHA Silver
52 m² + 17 m² private open space



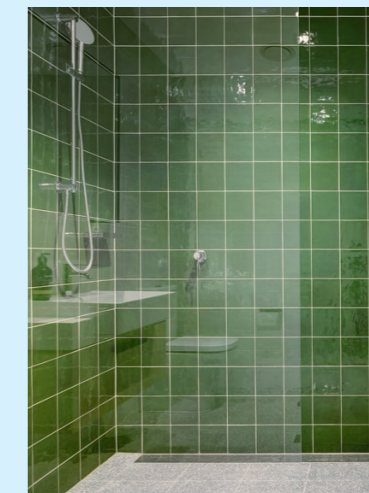
2 bedroom LHA Silver
73 m² + 16 m² private open space



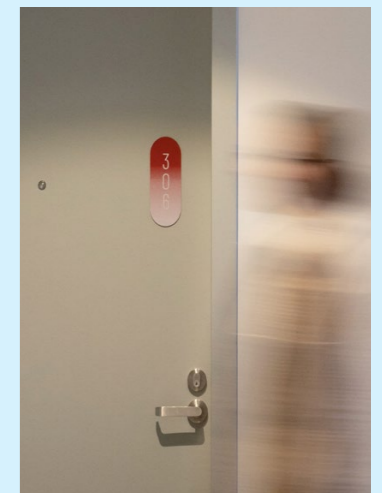
2 bedroom adaptable
84 m² + 15 m² private open space



2 bedroom adaptable
77 m² + 11 m² private open space



Finishes
Simple and beautiful coloured tiles distinguish the high-quality interiors



Wayfinding
Individual apartment numbers are clearly identified using bright-red signs

LINE OF SIGHT TO THE APARTMENT DESIGN GUIDE (ADG)

ADG PART 3 SITING THE DEVELOPMENT:

Communal and public open space, Objective 3D-1, and deep soil zones, Objective 3E-1

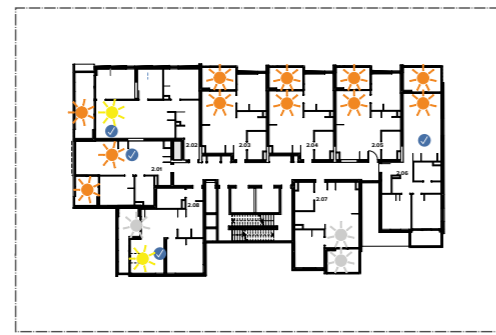
The valuable common areas are located so they are connected to the existing large canopy cover of the native lemon gum trees that share habitat with the eastern neighbour. This tree cools and shades the space for residents to enjoy.

Communal open space is located at ground level, with a mix of varying landscape spaces for residents' gathering and socialising. Access to the common areas is equitable for all residents with direct entry via a central corridor from the shared lobby and perimeter pathways connecting north, east and south along garden boundaries.

The minimum required area of communal open space (25% of site area: 439.45 m²) was exceeded, providing 472 m² of communal open space.

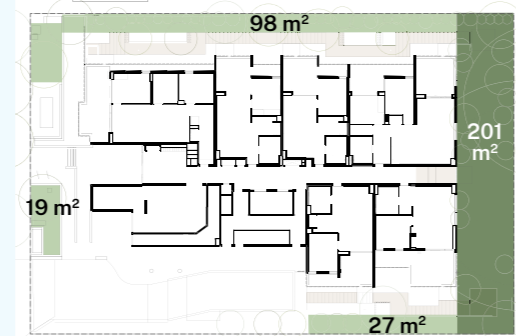
The 6 m setback provisions to the east ensure adequate and continuous deep soil conditions, supporting healthy tree growth. The apartment outlook from balconies and windows to the large and established lemon gum on the east increases biophilic connection for residents.

The minimum required deep soil zone was 7% of the site area at a width greater than 6 m (123 m²). This was exceeded and 201 m² has been provided.



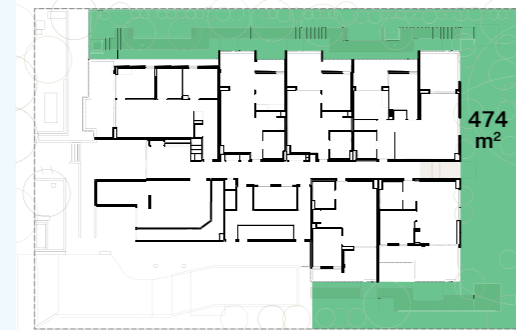
Typical floor plan podium
Solar access, natural ventilation and no direct sunlight.

- ☀ Solar access ≥ 2 hrs
- ☀ Solar access < 2 hrs
- ☀ No direct sunlight
- ⦿ Cross ventilation



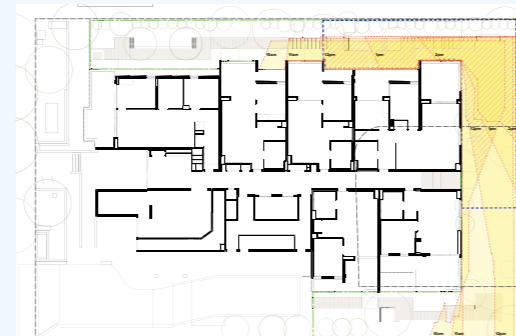
Site plan - deep soil

- Deep soil zone (6m wide)
- Deep soil (less than 6m width)



Site plan - communal open space (COS)

- Proposed communal open space area



Site plan - COS solar access

- ⦿ Communal open space
- ⦿ Primary open space
- ⦿ Primary open space > 2 hours solar access
- ⦿ Communal space solar access 9 am - 3 pm

ADG PART 4 DESIGNING THE BUILDING:

Solar and daylight access, Objective 4A-1, and natural ventilation, Objective 4B-3

Solar access was difficult to achieve with the existing neighbouring dwellings located close to the north and south boundaries. To address this, the design used a slender 6-storey tower form with a 4-level podium. In discussions with council the northern boundary setback was reduced from the development control plan guidance to align with future setback patterns. This allowed a bespoke response to the east to capture morning light and achieve solar access to apartments and usable communal open space. Resulting in 71% of 41 units achieving 2 hours of direct sun to their living areas and private open spaces. Solar access was maximized with only 13% of the 52 apartments receiving no direct sunlight at winter solstice. This exceeds the ADG minimum requirement of 15%.

The slender tower maximised the number of corner apartments meaning that 67% of dwellings above 9 storeys were naturally cross ventilated, again exceeding ADG requirements of 60%.

Biodiversity
The roots of established native trees have been protected and retained, supporting a healthy urban environment

