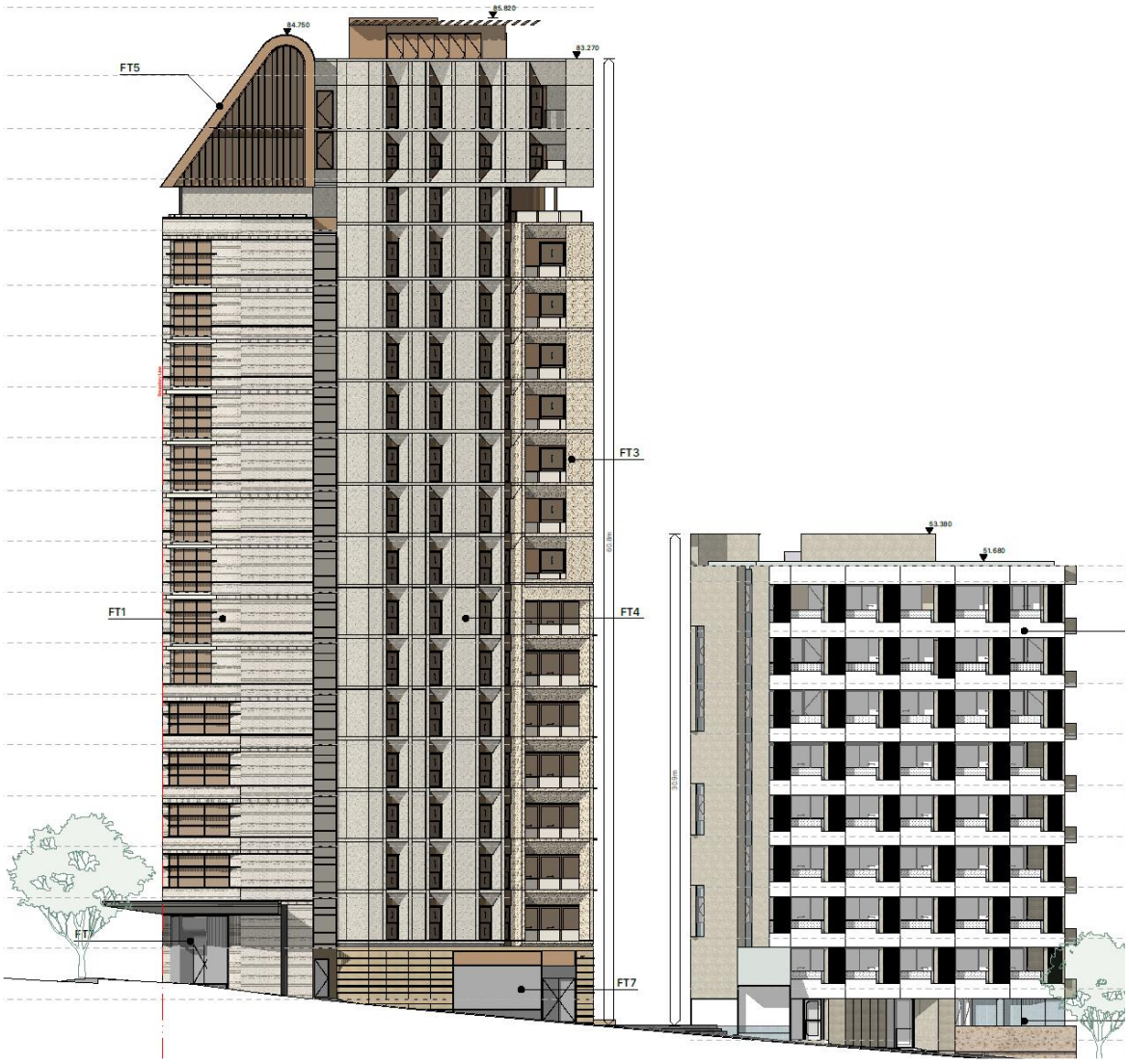
ESD Analysis and Report

164-194 William St, Woolloomooloo



Prepared for
William Street Residential Pty Ltd

Prepared by
GREENPERCH PTY LTD

September 2025

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William Street Residential Pty Ltd

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1. Introduction and ESD Summary

1.1 Executive Summary

This report summarises the ESD aspects for the proposed development, at 164-194 William St, Woolloomooloo 2011. The client and the design team have made a strong commitment to ESD, especially for items such as thermal comfort, water, energy, waste, materials, transportation, management and landscaping. This report discusses, in detail, how the proposal has embraced these sustainability principles. The design used the Sydney Development Control Plan 2012, and the strategies have strived to meet these ESD objectives and more. The Principles of Ecologically Sustainable Development were also embraced, and these include: (a) the precautionary principle, (b) inter-generational equity, (c) conservation of biological diversity and ecological integrity, and (d) improved valuation, pricing and incentive mechanisms. These principles guided most ESD and design decisions, through the long design process.

LOCATION CONTEXT - 164-194 William St, Woolloomooloo 2011

This ESD Report has been prepared by GreenPerch to accompany the proposed State Significant Development Application (**SSDA**) for a mixed-use infill affordable housing development at 164-172 & 174-194 William Street Woolloomooloo. The site is made up of two (2) lots. The legal description of the site is outlined below.

Property Address – Legal Description	Title Description
164-172 William Street, Woolloomooloo	Lot 52 in DP1049805
174-194 William Street, Woolloomooloo	Lot 1 in DP816050

This report has been prepared to address the Secretary's Environmental Assessment Requirements (**SEARs**) issued for the project (SSD-80211463). This report concludes that the proposed development is suitable and warrants approval subject to the implementation of the mitigation measures listed in the report, as per below. Following the implementation of the above mitigation measures, the remaining impacts are appropriate.

1.2 Introduction and Site Details

GreenPerch has been commissioned by William Street Residential Pty Ltd to prepare this report in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the State Significant Development Application (SSD-80211463) for the proposed mixed-use infill affordable housing development at 164-172 and 174-194 William Street Woolloomooloo.

Following the Design Excellence Competition, the scheme has been revised to include In-fill Affordable Housing (**IAH**) in line with the NSW Government's policy under the *State Environmental Planning Policy (Housing) 2021* (*Housing SEPP*). This policy allows for a 30% increase in Floor Space Ratio (**FSR**) and building height when 15% of the total FSR is provided as affordable housing for 15 years. The proposed development meets these criteria and is eligible for the bonus uplift.

Given the residential component's Capital Investment Value (**CIV**) exceeds $75 million, an SSDA pathway can be taken. The proposal retains key design principles recommended by the Design Excellence Panel and aims to provide additional residential dwellings with a 30% increase in GFA and building height, in accordance with the Housing SEPP.

The purpose of the project is to facilitate the delivery of a high-quality mixed-use development containing residential and retail uses as well as a centrally located park, public domain improvements and improved through-site connectivity at a strategically located site. The proposal seeks to deliver a built form outcome that responds appropriately to its location on William Street in Woolloomooloo and in close proximity to Kings Cross Station and the Sydney CBD. Furthermore, the proposed scheme seeks to deliver an outcome that is consistent with the desired and evolving character of the Woolloomooloo and Potts Point area.

Specifically, this SSDA seeks consent for:

- 227 apartments (167 market housing, 60 affordable housing units)
- Ground floor retail and commercial uses with 7 – 18 storeys of residential tower across four buildings being:
  - FJC - William Street (West)
  - FJC - William Street (East)
  - Studio Bright – Forbes Street
  - Tribe Studio – Dowling Street
- A publicly accessible central park
- Public domain works and improved through-site links
- Four basement levels for parking, services and storage
- Vehicular and loading access from Forbes Street

This report has been prepared in response to the requirements contained within SEARs dated 21 February 2025 and issued for SSD-80211463. Specifically, this report has been prepared to respond to the SEARs requirement issued below.

This report addresses the following item required by the Secretary's Environmental Assessment Requirements (SSD-80211463):

SEARS	***Response***
15. Ecologically Sustainable Development (ESD) • *Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.* • *Where relevant, provide an assessment of the development against the standards for non-residential development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022.*	*Please refer to the BASIX certificates and ESD Report. ESD strategies are discussed on pages 11-39.* Principles of ESD are discussed in this report for residential and non-residential (please see ESD discussions and specifications). Embodied carbon analyses were also done for residential (BASIX) and non-residential. (a) the precautionary principle – this has guided all ESD decisions and the striving towards elevated scores. The site selection, planning, materials, water, energy and ESD aspects were all influenced. (b) inter-generational equity - likewise, this guided all ESD decisions and the striving towards elevated scores. The site selection, planning, materials, water, energy and ESD aspects were all influenced. (c) conservation of biological diversity and ecological integrity – the site selection, landscape design and ESD items adopted this. In particular a high % of locally indigenous plants (and natives) is proposed (d) improved valuation, pricing and incentive mechanisms – very high water, energy and NatHERS scores have been targeted to reduce running costs for residents. The fitout materials will also focus heavily on these principles. GECA, GreenTag and LCA tools will be used to reduce life cycle impacts.

THE SITE

The site is located at 164-172 and 174-194 William Street Woolloomooloo within the City of Sydney LGA. The site is comprised of multiple allotments and is legally described as:

- 164-172 William Street, Woolloomooloo
  - Lot 52 in DP1049805
- 174-194 William Street, Woolloomooloo
  - Lot 1 in DP816050

The land size totals 6,398m^2 and consists of a southern frontage to William Street, an eastern frontage to Dowling Street, a western frontage to Forbes Street and northern frontage to Judge Lane.

SURROUNDING CONTEXT

The immediate urban context surrounding the site is characterised by a mix of medium density residential, commercial, and retail uses. The site is in close proximity to Hyde Park, The Domain, and Rushcutters Bay Reserve. There are a number of educational and health services in proximity to the site, providing ample infrastructure support for the community.

William Street, to which the site fronts, is a classified road providing connection between the Eastern Suburbs of Sydney and the CBD. Vehicle access is currently provided from six points on the site from Judge Lane, Forbes Street, and Dowling Street. Pedestrian access to the site is currently available from all frontages.

The site is highly accessible to both bus and rail services, being approximately 300m away from Kings Cross Railway Station and having direct access to bus services on William Street that provide connections through the Metropolitan Transport Network.

At the time of lodgement, the site is improved by a warehouse style structure and glass office building to the site's frontage and an at-grade private carpark to the northwestern portion of the site.

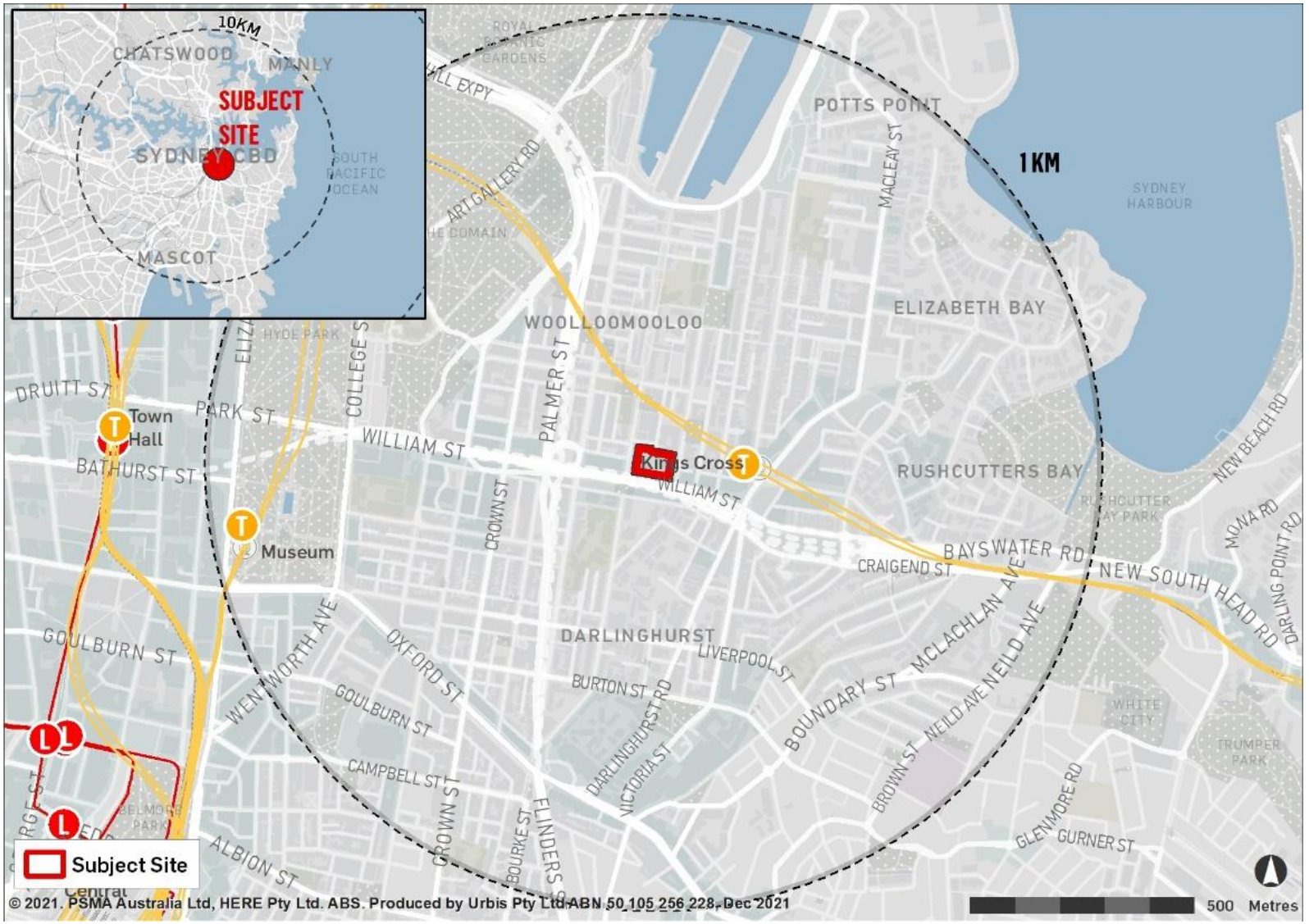
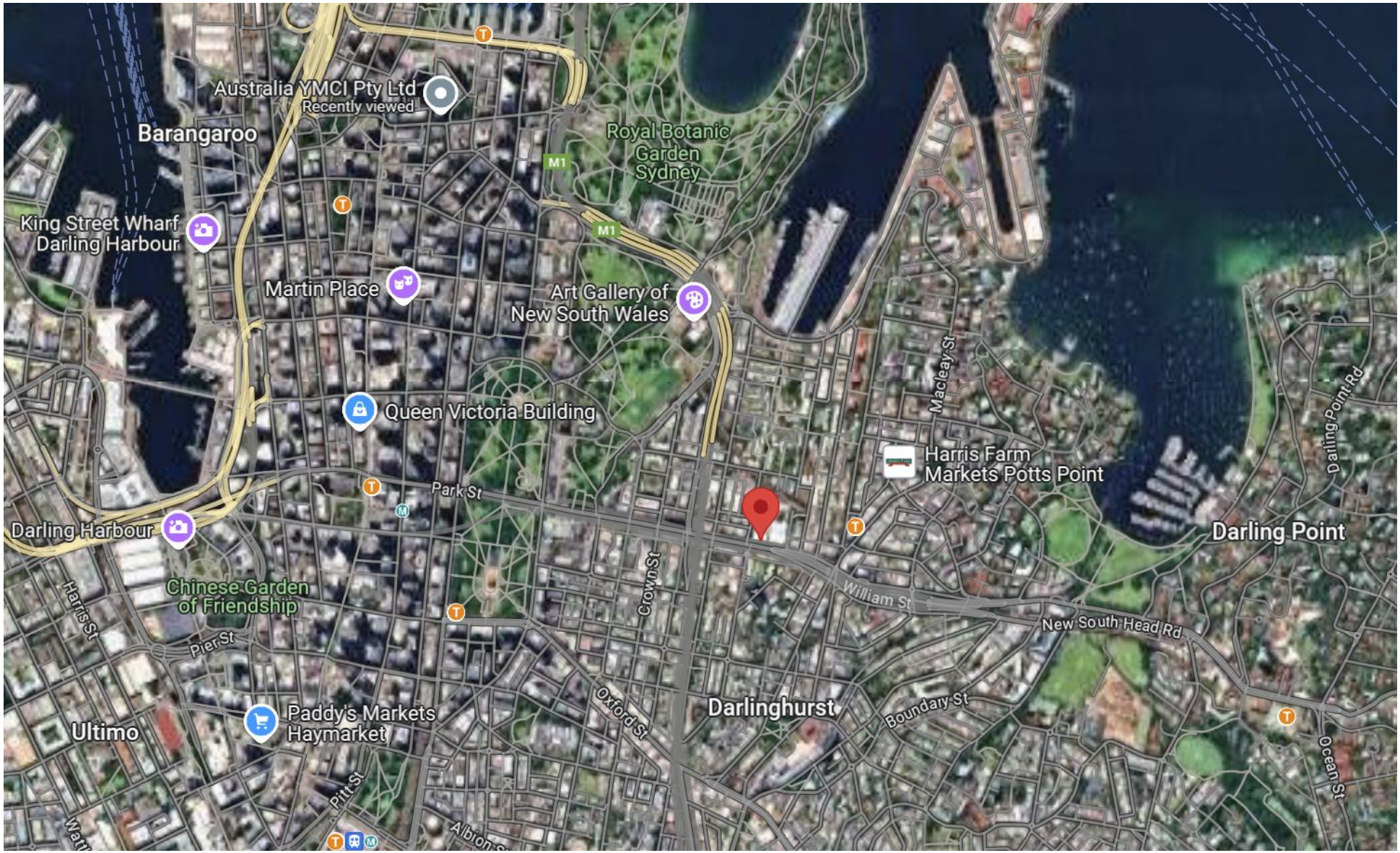


Figure - Local Context (from URBIS)

Figure - The Site (from URBIS)



SITE LOCATION PLAN – 164-194 William St, Woolloomooloo 2011

1.3 ESD Summary

Some of the main ESD targets suggested by council will be satisfied as follows:

1. An ecologically sustainable design (ESD) consultant was engaged in the design team. GreenPerch have suggested and tested various suitable and effective ESD initiatives. GreenPerch have many decades of experience and include engineers, architects and scientists.

2. Design for Climate Resilience - Design for extreme rainfall events; inclusion of external shade structures (and cross ventilation) for respite from extreme heat; sensible materials selection (including generous thermal mass); drought-tolerant landscaping; and buildings/spaces which are designed to cope with extended heatwave conditions. Passive cooling processes were also used cleverly, such as thermal mass, shading devices, dual-aspect design, corner-aspect designs, ceiling fans and large window openings.

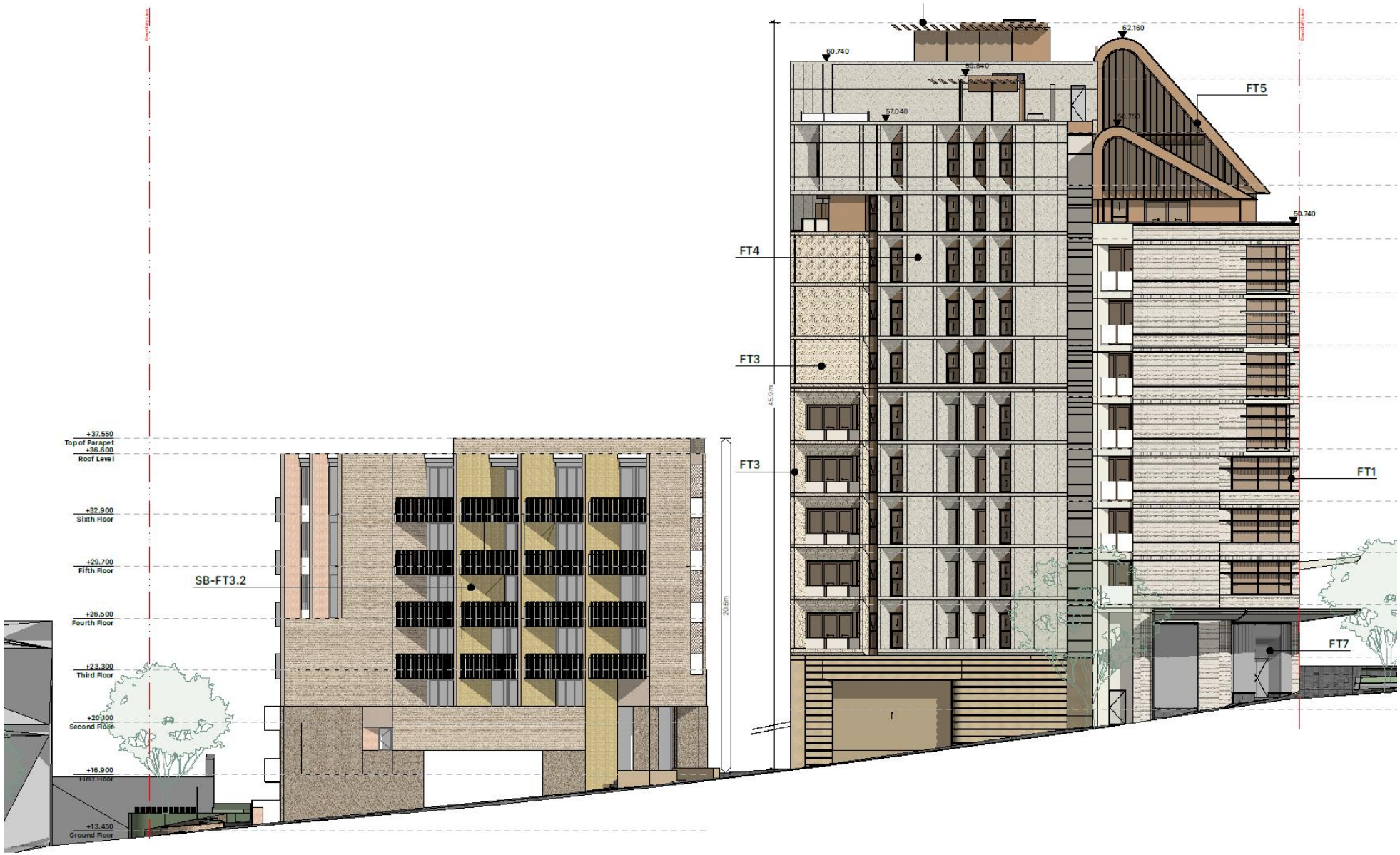
3. The buildings express a strong commitment to passive design (such as optimal orientation, shading devices, cross ventilation, thermal, mass, dual aspect design and open plan living). Performance glazing is also proposed for all the development, including performance glass (quality double glazing), tinting throughout and high-performance frames. Importantly, the intelligent use of facades, in addition to ceiling fans should give an optimum summer performance, for the base building.

4. To minimise energy use, the residential buildings have many low-energy initiatives, as discussed in the BASIX section. These include PV solar power, generous insulation; performance glazing; shading devices; energy-efficient appliances; efficient light fittings; light sensors; efficient hot water; and metering systems.

5. Waste management plans have been prepared for the construction and the operational phases. These plans will demonstrate the application of principles of the waste management hierarchy of waste: avoid use, reduction, re-use and recycling.

6. The use of rainwater irrigation for toilets and irrigation has been proposed. Furthermore, efficient fixtures and fittings are proposed for all zones to reduce potable water use. Generous locally indigenous and/or ‘’one-drop’’ (low-water) plants will also be used.

7. Sensible access to public transport, car-sharing, chargers and bicycle storage is proposed. Electric car-charging has been proposed, and all relevant switchboards will be prepared in accordance with Section J. Overall, the design will encourage public transport, walking, bicycles and carshare schemes (over private motor vehicle use).

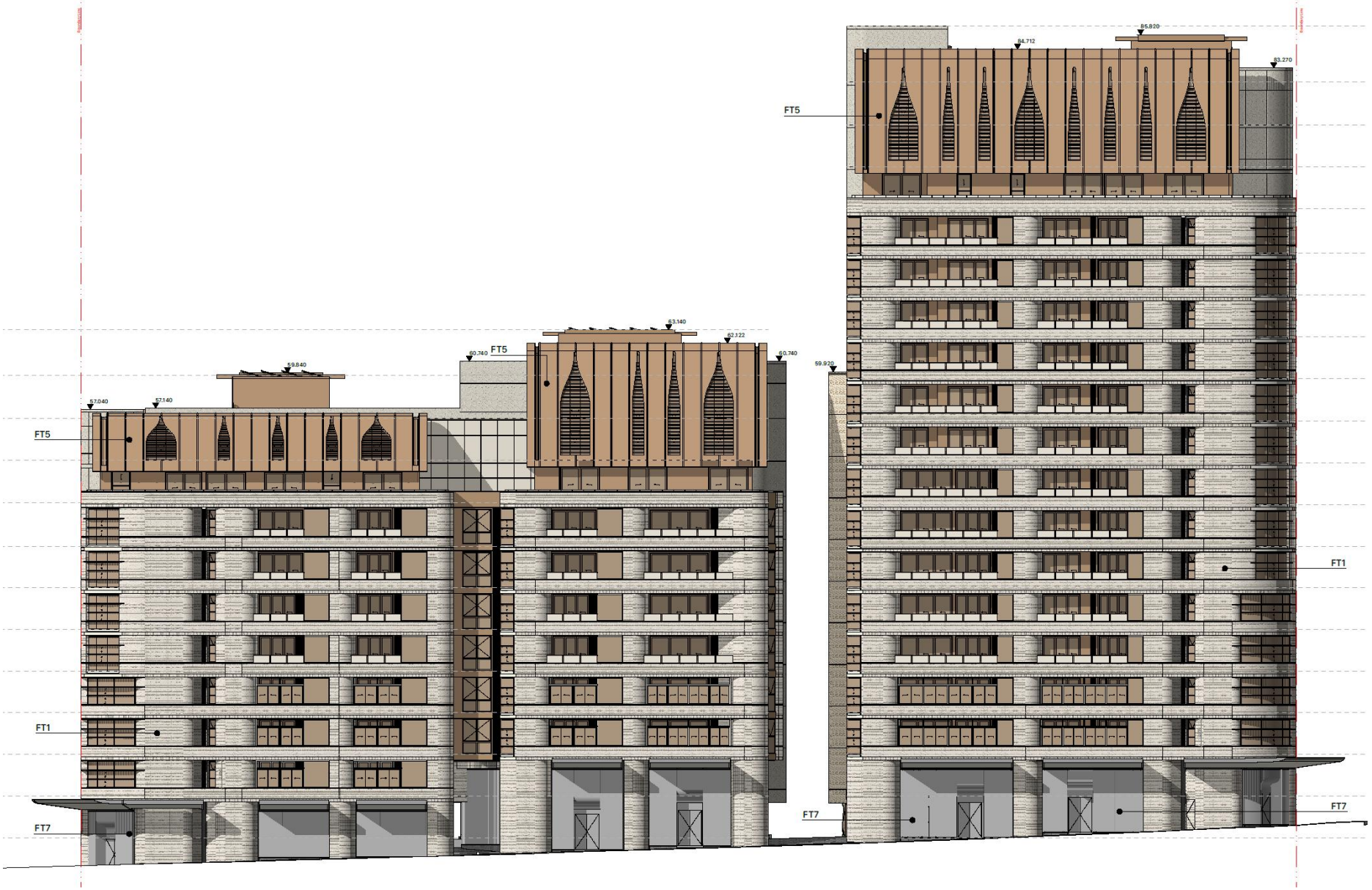


West Facade - 164-194 William St, Woolloomooloo 2011

Some of the other ESD commitments are listed below. These are also listed later in the report, in relation to the BASIX assessment:

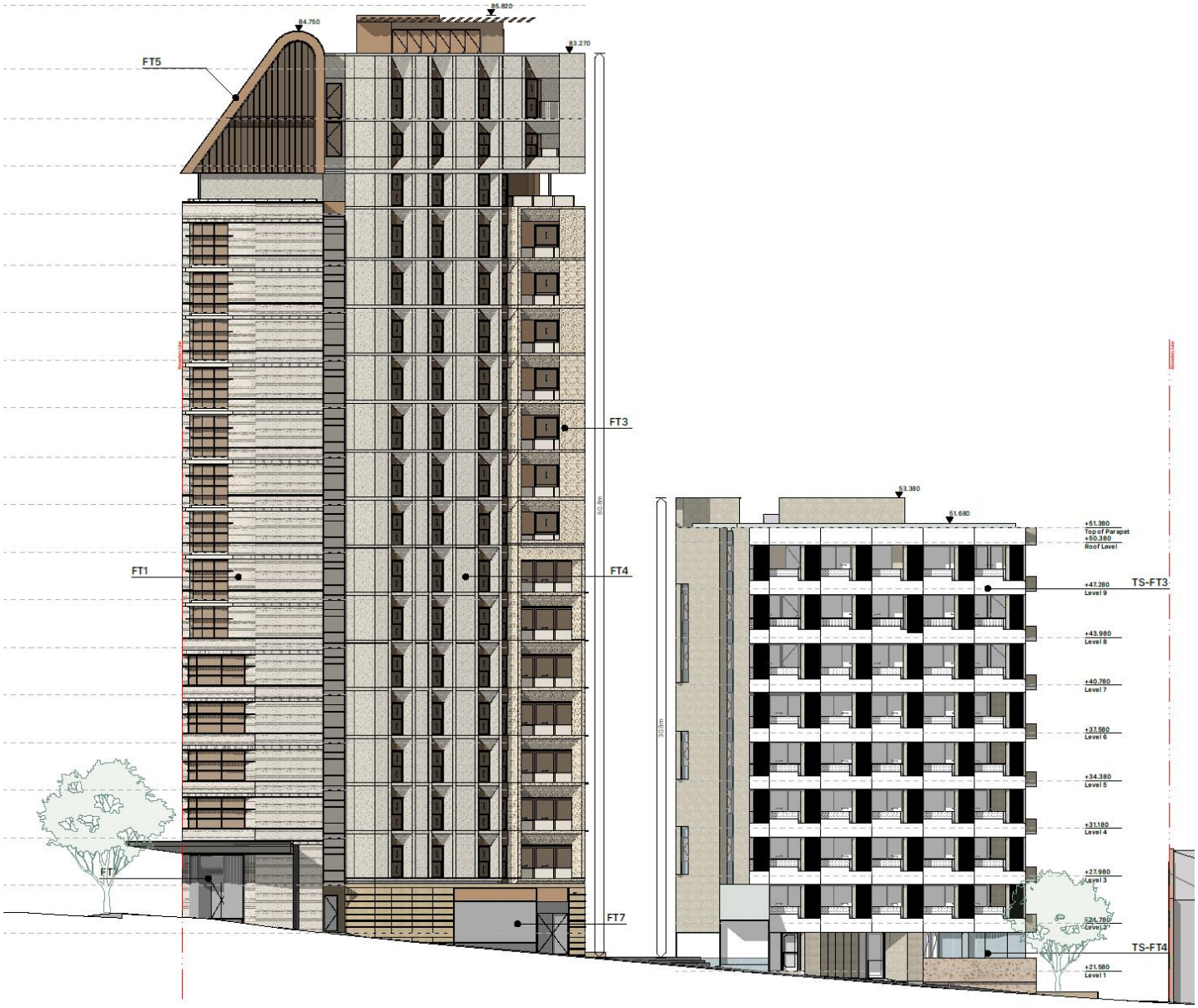
- Water-efficient fixtures (5-star taps, 4-star toilets, 4-star showers, etc)
- Rainwater for residential and non-resi - irrigation and some toilet flushing – 20 kL or more for tanks
- Efficient irrigation such as drip irrigation, timers and moisture -sensors for planters and gardens
- Inclusion of locally indigenous or drought tolerant, “one-drop” plants
- Generous deep-soil allocation and planter bed gardens
- Water-efficient whitegoods (dishwashers in all units)
- Recycling or reuse (closed loops) of water from fire pump testing
- PV solar power to provide power for common areas and/or retail and other uses – approx 60 kW peak
- Energy-efficient whitegoods throughout (dishwashers, dryers, etc)
- Motion-sensors and time-based controllers (time clocks) for lights, ventilation, etc
- Air quality (CO/CO2) monitors for the carpark ventilation system control and efficient, variable-speed fans
- Light-colour roofs, generous vegetation and passive cooling to reduce ‘’urban heat-island effects’’
- Paints and floor-coverings with low VOCs and wood products with low formaldehyde (and low VOCs), where possible
- Water-based and low-emission paints where possible, for internal 'low-sheen' areas
- Low-emission and (where practical) water-based paints for internal gloss or semi-gloss finishes
- Sensible access to train and bus transport as well as an extensive network of bike paths
- Generous Bicycle Parking and easy access to bicycle pathways
- Investigation of suitable “Carshare” schemes and other private-vehicle-alternative schemes for the benefit of residents
- Reduced Living and Operating Costs (water, gas and electricity bills will be reduced due to the good BASIX and NatHERS scores)

TYPICAL FLOOR PLAN (Level 01-02) – 164-194 William St, Woolloomooloo 2011

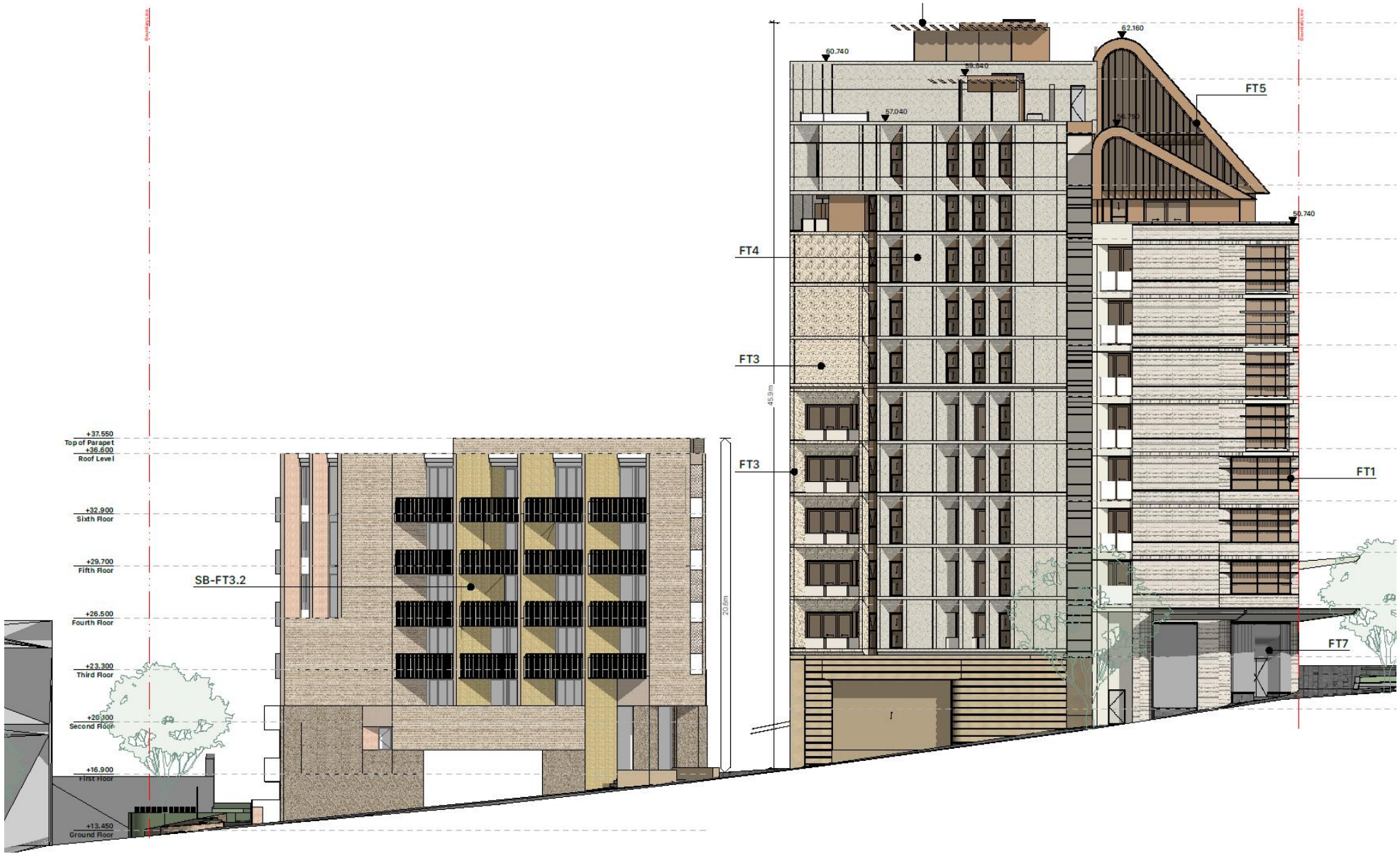


ELEVATION 1 SOUTH - 164-194 William St, Woolloomooloo 2011

ELEVATION 2 NORTH- 164-194 William St, Woolloomooloo 2011



ELEVATION 3 EAST - 164-194 William St, Woolloomooloo 2011



ELEVATION 4 WEST - 164-194 William St, Woolloomooloo 2011

The following scores were achieved for NatHERS:

- Average NatHERS rating > 7.7 stars
- Average cooling load <9 MJ/m2.year (permitted average is 20 MJ/m2.year)
- Average heating load <16 MJ/m2.year (permitted average is 28 MJ/m2.year)

To achieve these scores, the following materials and construction systems have been proposed:

NatHERS - Thermal Comfort UNITS	Proposed Specifications for units
External Walls 1	Concrete wall + R2.5 added (Metal studs +R0.2 break)
External Walls 2	Metal cladding +R2.5 added (Metal studs +R0.2 break)
External Walls 3	Colorback glass +R2.5 added (Metal studs +R0.2 break)
External Walls 4	Brick Veneer +R2.5 added (Metal studs +R0.2 break)
Unit Walls next to halls/lobbies 1	Hebel 75mm and studs + R2 acoustic insulation
Unit Walls next to halls/lobbies 2	Concrete columns +plasterboard +R2.0 insulation
Party walls 1	Hebel 75mm and studs + optional insulation (dictated by acoustic)
Party walls 2	Concrete columns, lined plasterboard + optional insulation
Walls next to lifts/stairs/etc	Concrete or filled block and plasterboard
Internal Walls	Plasterboard on Studs and concrete
Floor Finishes (as shown)	Tiles - wet areas, carpet - bedrooms, floating timber – living/dining
Internal Floors	Concrete floors, with plasterboard below
External Floors (air or basement below)	Concrete slab & basement or air below + R2 under rooms over basement/air
Roofs 1 - below balconies/terraces	Concrete + R2.5 added (Metal studs +R0.2 break)
Roofs 2 - penthouse roofs	Concrete + R3.5 (and R0.2 break) except R4.3 and foil NE901 + 607w + 903w
Roof 3 - Metal roof	Roof has R1.8 & foil + R3.5 (and R0.2 break) at ceiling except R4.3 & foil for 903w
Roof Colour	Light and medium roofs (much with PV or vegetation)
Skylights for units	Double glaze/tint, U ≤ 2.7, SHGC =0.24 ±5% (VELUX, etc)
Window Shading	Eaves and overhangs + Screens as shown
Weather Stripping	All external doors and windows
Ceiling Penetrations Lights	RCP not finalised, so generic holes assumed, as per protocol
Ceiling Penetrations Fans	RCP not finalised, so generic holes assumed, as per protocol
Ceilings fans (1400 diam in some units, living)	ne801, 1501e, 1502e, 1601e, 1602e (2 zones) +706w, 801w, 903w (3 zones) +105e to 705e

Windows Proposed	Window Specifications
1. Window (AWNING / BIFOLD / HINGED)	Aluminium frames and double-glazed with tinting
Windows - U-value	≤ 4.1
Windows – SHGC	0.47 ± 5%
3. Windows (FIXED)	Aluminium frames and double-glazed with tinting
Windows - U-value	≤ 2.6
Windows – SHGC	0.53 ± 5%
2. Windows (SLIDERS/ GUILLOTINE)	Aluminium frames and double-glazed with tinting
Windows - U-value	≤ 3.1
Windows – SHGC	0.49 ± 5%
4. Windows (See list -Few Problem Unit sliders)	Aluminium frames and double-glazed with tinting
Windows - U-value	≤ 2.6
Windows – SHGC	0.53 ± 5%
Glass 4 simulated in all sliders for 13 units - ne901, M07w, 605w, 706w, 1305e, 1602e… and 105e to 705e	
Glass 4 simulated in all sliders + all guillotine for unit 903w (also fixed glass in 903w is: u <2.2 and SHGC = 0.39 ± 5%)	

Simulation Notes:

- Shading devices used from elevations, sections and plan mark-ups (may need re-checking at CC stage).
- No RCP provided at DA so generic holes assumed for all downlights (must have extra checking and rerunning at CC stage)
- No RCP provided at DA so generic holes assumed for exhaust fans (must have extra checking and rerunning at CC stage)
- Concrete walls and floor thickness need checking at CC stage, due to complexity of the proposed construction.
- All wall types, ceiling types, floor types need checking at CC stage, due to complexity of the proposed construction.
- Window sizes used from elevations, sections and plans (may also need re-checking at CC stage).
- Neighbouring buildings on site are modelled as shown (for overshadowing) but tree preservations not modelled.
- Windows hidden (with no size or operability shown) are assumed as full height and fixed (needs re-checking at CC stage).
- Door sizes used from elevations, sections and plan mark-ups (may need re-checking at CC stage

BASIX Energy Item	Proposed for Development
Building management system (BMS)	Yes
Active power factor correction (PFC)	Optional
Photovoltaic Solar Power	60 kW total PV
Hot Water	Heat Pump Central COP >3.0 (R1 insulation for ringmain +supply risers)
Lift type	Gearless, VVVF lift motors + regen drive
Lifts served	Lifts serve all levels (see lift schedule and BASIX cert)
Spas and Pools	No pools but heat pump spas with timers and covers
Kitchen Exhaust	Fan to façade/roof - manual switch

BASIX Energy Item	Proposed for Development
Bathroom Exhaust	Fan to façade/roof - manual switch
Laundry Exhaust	Fan to façade/roof - manual switch
Lighting for Living/ Kitchen/ Dining	LEDs ≥80% fittings (all dedicated)
Lighting for Bathrooms/Toilets	LEDs ≥80% fittings (all dedicated)
Lighting for Laundry	LEDs ≥80% fittings (all dedicated)
Heating for Dwellings (beds + living)	1 phase system, 3.0 or more for EER
Cooling for Dwellings (beds + living)	1 phase system, 3.0 or more for EER
HVAC zoning for units	Not used (hence, bedrooms and living can be cooled at same time)
Clothes lines	Not supplied
Cooking	Induction cooktop & electric oven
Clothes washers	Not supplied
Clothes washers	Not supplied
Clothes dryers	8 star energy
Dishwashers	4 star energy
Fridges	Not assessed in BASIX anymore
Vented fridge spaces	Not assessed in BASIX anymore

BASIX Water Item	Proposed for Development
Showers	≤ 6.0 L/min (low-flow in BASIX)
Toilets	4 star, or better
Kitchen Taps	5 star, or better
Bathroom Taps	5 star, or better
Dishwashers	4 star WELS or better
Clothes washers private	5 star WELS or better
Clothes washers common	None provided
Rainwater Tank	20 kL minimum - collects >500 m2
Rainwater Tank Use	Irrigation lawns + planting (and car wash)
Sprinkler test water	All "test-water" re-used in a closed loop
Landscaping Area	1,200 m2 plants + 400 m2 lawn
Landscaping Types	Locally indigenous or 1-drop low water for plants >25% = 300 / 1,200 m2
Spas and Pools	No pools but heat pump spas with timers and covers

Common area name	Select the ventilation system type *	Select the efficiency measure *
Communal Gymnasium East	air conditioning system	time clock or BMS controlled
Communal Gymnasium NE	air conditioning system	time clock or BMS controlled
Undercover car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan
Undercover loading dock	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan
Switch room main	ventilation exhaust only	thermostatically controlled
Bin and Waste Rooms	ventilation exhaust only	n/a
Communal rooms east basement	air conditioning system	time clock or BMS controlled
Community room NW	air conditioning system	time clock or BMS controlled
Plant or service room	ventilation exhaust only	none i.e.. continuous
Pump and fire rooms	ventilation exhaust only	thermostatically controlled
Toilets shared facilities	ventilation exhaust only	time clock or BMS controlled
Communal Dining Room	air conditioning system	time clock or BMS controlled
Store rooms and cellar	ventilation supply only	none i.e.. continuous
End of Trip facility	ventilation supply only	time clock or BMS controlled
Ground floor lobby west - William st	air conditioning system	time clock or BMS controlled
Ground floor lobby east-William St	air conditioning system	time clock or BMS controlled
Ground floor lobby NE building	air conditioning system	time clock or BMS controlled
Ground floor lobby NW building	air conditioning system	time clock or BMS controlled
Hallway/lobby B1 william st	ventilation supply only	time clock or BMS controlled
Hallway/lobby NE building	ventilation supply only	time clock or BMS controlled

Common area name	Primary lighting system type *	Efficiency measure *	Lighting control system / BMS
Lift bank (No. 1)	light-emitting diode	connected to lift call button	Yes / No
Lift bank (No. 2)	light-emitting diode	connected to lift call button	Yes / No
Lift bank (No. 3)	light-emitting diode	connected to lift call button	Yes / No
Lift bank (No. 4)	light-emitting diode	connected to lift call button	Yes / No
Lift bank (No. 5)	light-emitting diode	connected to lift call button	Yes / No
Communal Gymnasium East	light-emitting diode	time clocks	Yes / No
Communal Gymnasium NE	light-emitting diode	time clocks	Yes / No
Undercover car park area	light-emitting diode	zoned switching with motion	Yes / No
Undercover loading dock	light-emitting diode	zoned switching with motion	Yes / No
Switch room main	light-emitting diode	manual on / manual off	Yes / No
Bin and Waste Rooms	light-emitting diode	motion sensors	Yes / No
Communal rooms east basement	light-emitting diode	motion sensors	Yes / No
Community room NW	light-emitting diode	motion sensors	Yes / No
Plant or service room	light-emitting diode	manual on / manual off	Yes / No
Pump and fire rooms	light-emitting diode	manual on / manual off	Yes / No
Toilets shared facilities	light-emitting diode	motion sensors	Yes / No
Communal Dining Room	light-emitting diode	motion sensors	Yes / No
Store rooms and cellar	light-emitting diode	zoned switching with motion	Yes / No
End of Trip facility	light-emitting diode	zoned switching with motion	Yes / No
Ground floor lobby west -William st	light-emitting diode	motion sensors	Yes / No

Common area name	Primary lighting system type *	Efficiency measure *	Lighting control system / BMS
Ground floor lobby east-William St	light-emitting diode	motion sensors	Yes / No
Ground floor lobby NE building	light-emitting diode	motion sensors	Yes / No
Ground floor lobby NW building	light-emitting diode	motion sensors	Yes / No
Hallway/lobby Bl william st	light-emitting diode	zoned switching with motion	Yes / No
Hallway/lobby NE building	light-emitting diode	zoned switching with motion	Yes / No
Hallway/lobby NW building	light-emitting diode	zoned switching with motion	Yes / No

1.4 EER – Energy Efficiency Summary

The main mechanisms for energy assessment and measurements will be Section J (for the retail and commercial portions including JV3 analysis later) and BASIX for residential areas. The energy strategies below are proposed for the development, as discussed throughout this report.

Greenhouse-gas reduction and energy-efficiency initiatives include:

- Project scoring an average >7.7-star NatHERS rating across the development. This is above the minimum required to pass BASIX and this contributed towards the excellent energy performance.
- Average cooling load <9 MJ/m2.year (permitted average is 20 MJ/m2.year)
- Average heating load <16 MJ/m2.year (permitted average is 28 MJ/m2.year)
- Generous PV solar power to provide power for common lighting or other uses
- Non-residential will achieve low energy use per m2, following resolved mech and electrical designs (as per council's DCP)
- Lighting throughout the development will use LED technology (or high efficiency CFL's where appropriate).
- Fixtures, fittings and HVAC are very low-energy and include highly rated whitegoods and energy-efficient AC for units
- A building engineer/manager will be used to undertake building commissioning, for required systems, upon completion.
- Unit design included effective cross-ventilation, generous insulation, operable glazing and suitable shading devices. In particular, the corner dwellings, the dual aspect dwellings, the thermal mass and the large openings (such as sliders) all helped the passive cooling and heating.
- Glazing was appropriately designed to reduce heat losses in winter, and to give opportunities for natural cooling in summer. Furthermore, performance glazing is proposed for all of the development, including double-glazing for all apartments, retail and commercial areas.
- External walls, floors and roofs will all contain very generous added insulation, to help reduce the reliance on mechanical heating & cooling.
- Good Section J results were achieved, due to generous insulation, shading, thermal mass and high-end double-glazing throughout.

2. ESD Strategy (Environmentally Sustainable Development)

This project was conceived and designed in accordance with many best practice principles of "Ecologically Sustainable Development" (ESD). This following ESD report describes some of the initiatives relating to energy, water, transport, management, governance, indoor environmental quality, emissions, ecology, materials and community. The principles of ESD guided all decisions for both residential and non-residential (as shown in ESD discussions and specifications). In particular, the following principles guided all decisions relating to these ESD categories:

(a) the precautionary principle – this has guided all ESD decisions and the striving towards elevated scores. The site selection, planning, materials, water, energy and ESD aspects were all influenced.

(b) inter-generational equity - likewise, this guided all ESD decisions and the striving towards elevated scores. The site selection, planning, materials, water, energy and ESD aspects were all influenced.

(c) conservation of biological diversity and ecological integrity – the site selection, landscape design and ESD items adopted this. In particular a high % of locally indigenous plants (and natives) is proposed

(d) improved valuation, pricing and incentive mechanisms –high water, energy and NatHERS scores have been targeted to reduce running costs. The fitout materials will also focus on these principles. GECA, GreenTag and LCA will be used to reduce life cycle impacts.

2.1 Governance

The proposed development will establish and maintain strong governance practices. These, in turn, will promote engagement, transparency and resilience to the conditions of a changing climate. Good environmental management practices will be adopted, including enhanced commissioning, ongoing tuning and the production of building-user information. Best practice construction environmental management processes will also be implemented. Waste diversion from landfill will be targeted, through intensive recycling of construction and operational waste, wherever possible. Metering and monitoring will also ensure operational performance can be optimised, for water, energy and HVAC.

2.1.1 Adaptation and Resilience

Climate change adaptation and resilience have been considered in detail. This "futureproofing" strategy will enable the building to adapt to potential climate change challenges and future extreme weather events (with the intention of minimising both risk and disruption to the occupants, the building and the community). In particular, the use of rainwater tanks will help reduce the impact of drought periods, for irrigation. The use of performance glass, generous insulation and other thermal comfort techniques will

help to deal with changes in climatic conditions, without the excessive reliance on AC. Light colours, shading and generous planting will also reduce heat-island effects.

2.1.2 Commissioning and Tuning

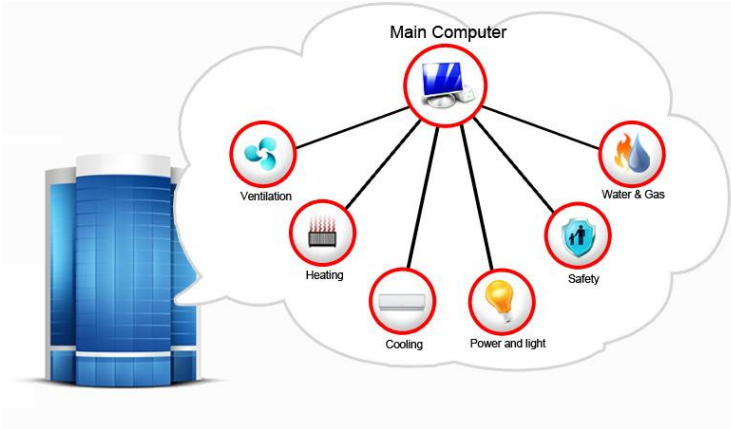
Relevant subcontractors will undertake detailed commissioning and building tuning for all major systems in the building. These systems will relate to water, energy and HVAC.

2.1.3 Building Information

Building operation and maintenance information will be provided and this information may be used to educate building occupants and visitors on the sustainability features of the buildings and how to use these features effectively, in order to reduce potential environmental impacts.

2.1.4 Metering and Monitoring

A metering and monitoring strategy will be implemented to track energy and water use. This system will also monitor progress against performance and will assist with the identification of leaks, faults or excessive consumption. Sub-metering will be provided for major energy and water uses, as required by the NCC. Energy sub-metering will be provided for end users. Likewise, water sub-metering may be provided for a variety of uses, pending the final design.



2.1.5 Construction Environmental Management

A Construction Environmental Management Plan (CEMP) will be developed and implemented by the head contractor. This CEMP will be critical to assist with managing the environmental performance, conditions, and impacts arising from excavations, the demolition work and the construction of the proposed buildings.

2.1.6 Operational Waste

Facilities will be provided for the collection, storage and separation of distinct waste streams for collection by the relevant waste contractors. A Waste Management Plan (WMP) will be provided for building operations. In addition, strategies such as well-located recycling facilities (for both the residential and retail/commercial zones) will be incorporated, to increase the ease of recycling. A detailed operational waste managaement plan (OWMP) has also been prepared. This OWMP details all recycling and waste management for the various building zones, during operation.

2.2 Indoor Environmental Quality

Indoor Environmental Quality (IEQ) will be improved through consideration of indoor air quality, acoustic conditions, thermal comfort, visual comfort, daylighting and external views. The various IEQ strategies are outlined in more detail below.

2.2.1 Indoor Air Quality

Preference will be given to paints, adhesives, sealants, floor coverings and engineered wood products with low Volatile Organic Compound (VOC) emissions and low formaldehyde emissions. This will help to minimise indoor air contamination and to promote occupant health.

The ventilation system for the building will be designed under the guidance of ASHRAE Standards, for issues such as separation distances between pollution sources and air intakes. Ductwork will also be protected during construction to ensure it remains free of moisture and debris prior to occupation.

2.2.2 Acoustic Comfort

The design has considered acoustic comfort in detail, including general noise levels, reverberation and noise separation. For example, acoustic insulation has been proposed between apartments and corridors, and this was selected to provide both acoustic and thermal comfort benefits.

2.2.3 Visual Comfort

Glare control mechanisms such as internal blinds and shading devices will be proposed to assist in maximizing visual comfort for the occupants. The design has also carefully considered the availability of daylight and external views. Furthermore, artificial lighting will consider appropriate colour perception and lighting levels, reduced glare from lamps and uniformity.

2.2.4 Daylighting

Studies by the architects have shown excellent solar access to most dwellings, across the building. The fortunate position, orientation and surrounding environment, have allowed for this. The increased daylighting will improve the indoor environment and reduce the reliance on electric lighting. It will also improve productivity, health and overall well-being. The good thermal comfort results have shown that daylighting was not implemented at the expense of overheating. The NatHERS results were excellent, and cooling estimates were very good, as discussed.

Solar Access through sensible plan layout and form (typical level) - 164-194 William St, Woolloomooloo 2011

2.2.5 Thermal Comfort

Performance glazing with some external shading will be utilised intelligently to improve thermal comfort for the occupants. Indeed, passive heating, passive cooling and natural ventilation have been carefully considered. To balance daylighting and views with thermal comfort, various performance-glazing products have been proposed (such as double-glazing for all apartments and priority zones). The glazing specifications were based on BASIX thermal comfort scores, to ensure that the correct glass is utilised for various orientations and building types.

It is also recognised that thermal comfort is extremely important for BASIX and sustainable design, however the windows also affect other important ESD issues. Therefore, a very careful and deliberate balance was made by the design team, to ensure good thermal comfort, minimal glare, good daylighting and connection to external views.

For example, the use of some darker tinting was implemented for thermal comfort, privacy and glare reduction. The use of some glazed balustrades was also implemented, to create exciting building aesthetics and to optimise passive heating and daylighting, through the building facades.

2.3 Energy

The design will seek to reduce energy consumption and greenhouse gas (GHG) emissions, by combining a well-designed building envelope and high-efficiency systems and services. Furthermore, smart controls, meters and automation will ensure that the major building services only operate when needed. Passive design principles have also been integrated (as discussed above) to reduce the demand for active systems such as HVAC and lighting.

2.3.1 National Construction Code Section J for Energy Efficiency

The NCC's Section J (National Construction Code) determines the minimum energy performance requirements for all new developments in Australia. The proposed design will meet all the NCC's Section J energy efficiency requirements. A detailed Section J summary report will be prepared, to demonstrate the design strategies to comply with NCC 2022 Section J, under the DTS assessment. Section J DTS testing has indicated that the retail zones will pass comfortably, since generous insulation and performance glazing are also being proposed in these zones, similar to the apartment designs.

The Section J report has also been prepared, and this looks in detail at each of the following energy categories:

- Part J1 Energy efficiency performance requirements
- Part J2 Energy efficiency
- Part J3 Elemental provisions for a sole-occupancy unit of a Class 2 or Class 4
- Part J4 Building fabric
- Part J5 Building sealing
- Part J6 Air-conditioning and ventilation
- Part J7 Artificial lighting and power
- Part J8 Heated water supply and swimming pool and spa pool plant
- Part J9 Energy monitoring and on-site distributed energy resources

Importantly, the "conditioned" zones will include the retail and apartment zones (but not hallways, plant rooms, pool rooms or back-of-house zones such as plant rooms or fire stairs). Even if air-conditioning is not proposed for some "habitable" parts of those building types, those zones will still be classified as "conditioned", for the purpose of the DTS analysis. This will ensure that all those high-importance areas have an excellent level of passive thermal comfort.

2.3.2 Energy reduction strategies

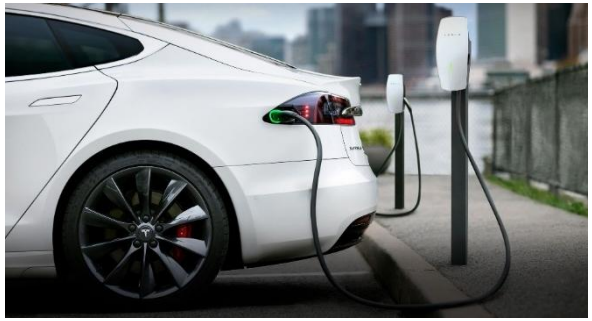
The following strategies have been embraced to improve energy efficiency:

- Use of renewable energy sources including generous PV solar power.
- Low-carbon hot water systems (electric heat pumps, air-sourced)

- Efficient heating, ventilation and cooling (HVAC) systems including:
    - High efficiency condensers, pumps, fans, etc
    - Sensors or BMS to monitor and control building systems
    - Ventilation with efficiency controls such as zoning and occupancy sensors
    - Carbon Monoxide sensors and variable VSD fans in basement levels
    - Common area ventilation to include efficiency controls such as zoning, motion sensors and time clock controls

- Passive systems such as passive heating, passive cooling and natural ventilation (through the intelligent use and positioning of thermal mass, window openings, glazing, shading devices, etc).
- Efficient lighting, sensors and efficiency controls (with mainly LED lights). This includes internal, external and public domain lighting.
- Efficient whitegoods, fixtures and fittings for energy. In particular, the whitegoods have a huge influence (on per capita energy use) so excellent dryers and dishwashers will be provided (to educate the residents and also to boost the already high BASIX scores).
- Some areas with shut-off switches for lights and non-essential power to be turned off when unoccupied.
- Appliances and whitegoods (as listed previously) will have very high energy efficiency ratings.
- Efficient taps, showers and water-consuming whitegoods, which will hence reduce the hot water use, per capita.
- Minimised infiltration through weather stripping for doors and windows, dampers for exhaust fans and compliance with Section J.

These energy strategies will also contribute to reducing peak electrical demand from the development. This factor is very important when it comes to reducing the stress on the surrounding energy networks and infrastructure.



2.4 Transport

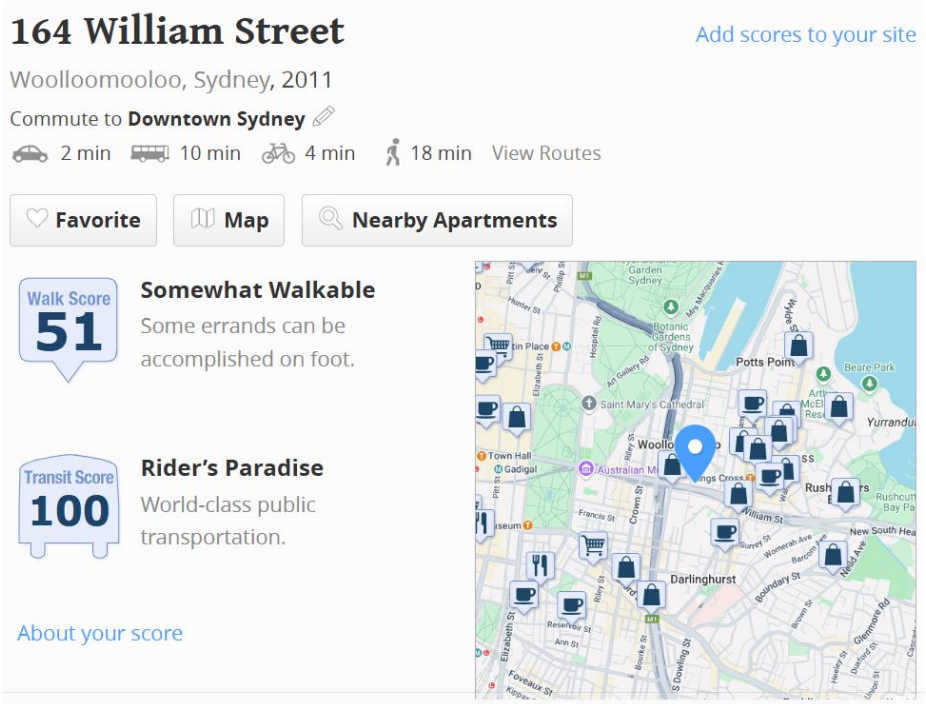
The following alternative transport initiatives are being proposed to improve amenity, to promote occupant health and to reduce transport related GHG emissions.

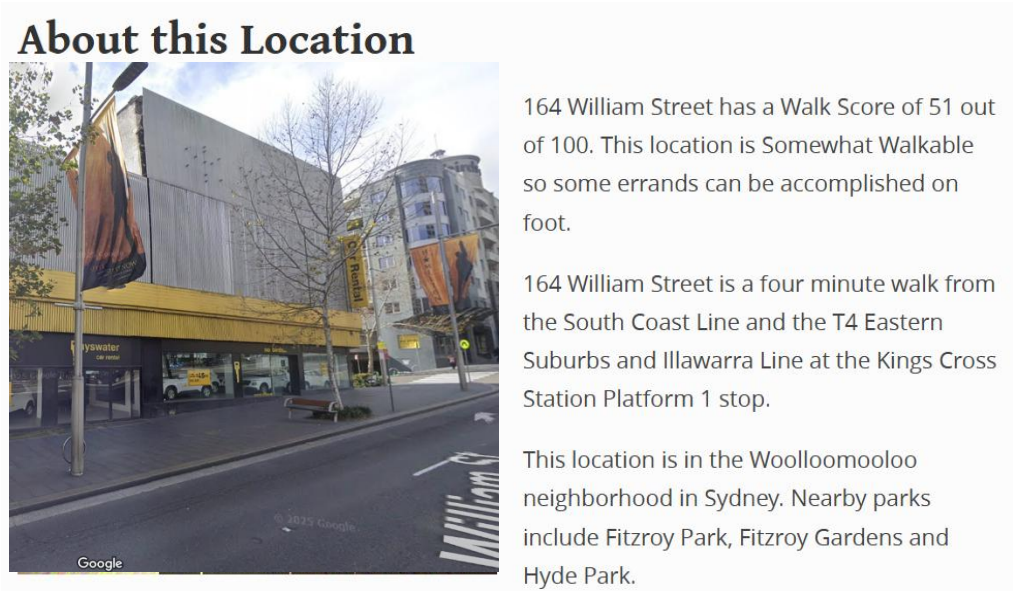
2.4.1 Active Transport Facilities

Secured bicycle parking and associated facilities have been provided for patrons and visitors. Overall, the design will encourage public transport, walking, bicycles and carshare schemes (over private motor vehicle use). The provision of shared bathroom facilities has also been implemented for non-residential components of the building, and this will encourage staff to cycle to work.

2.4.2 Walkable Neighbourhood & Public Transport

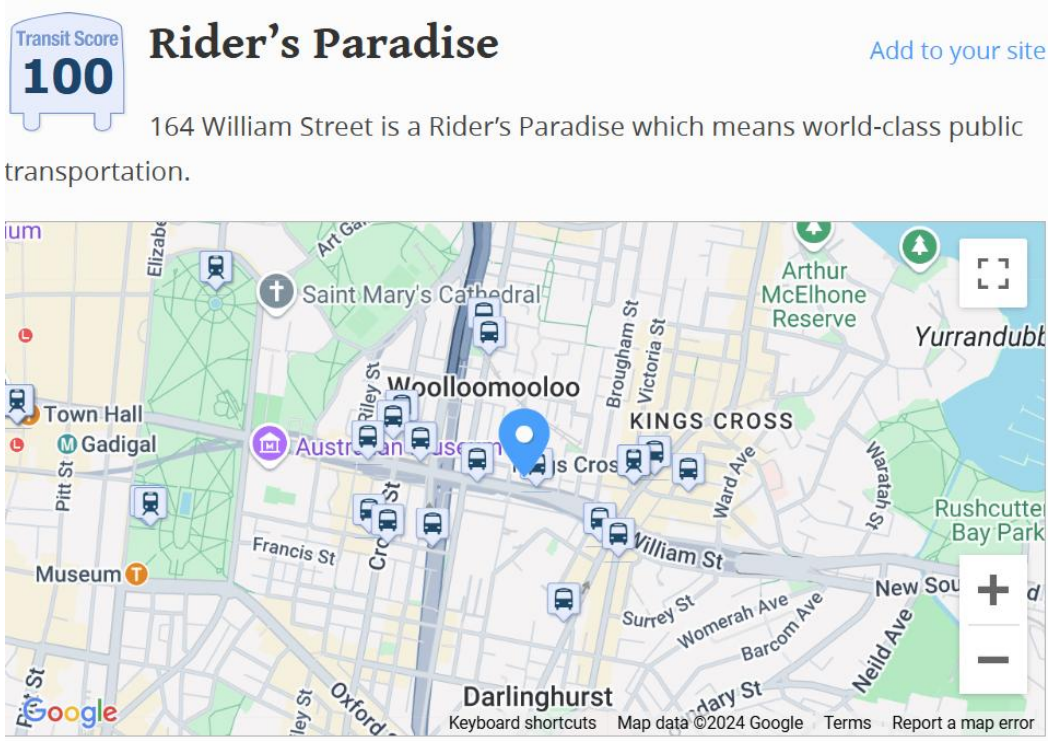
The site is located close to many amenities and has the best possible transit score of 100 (see below 100 score, Rider's paradise).

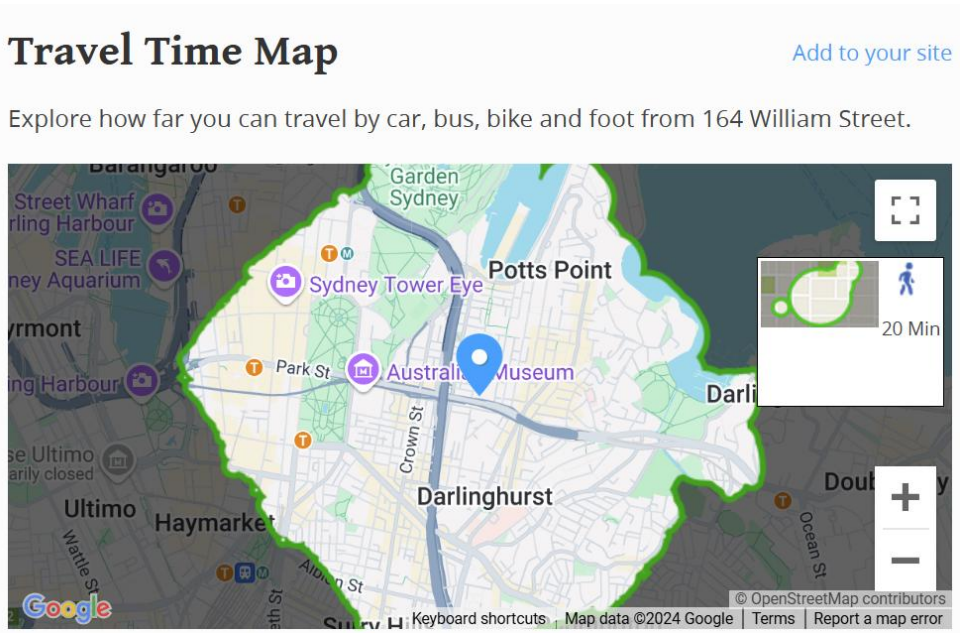




Consequently, the project has been designed to optimise connectivity and pedestrian links within the site itself for "enhanced walkability". This will allow access to the numerous features within the site itself. The corner aspect of the site has been taken advantage of and there are now numerous (easily accessed) entrance zones to the buildings.

The convenience, aesthetics and safety of the design have been carefully considered to encourage users to walk and cycle, rather than driving cars.





2.4.3 Electric car recharging stations

To encourage sustainable motor-vehicles, electric-car recharging facilities have been carefully considered, for future installation. Electric car-charging capabilities have been proposed for the development, especially with switchboard design and load capacities (with future charging facilities and switchboards to be compliant with the new NCC 2022 Section J provisions).

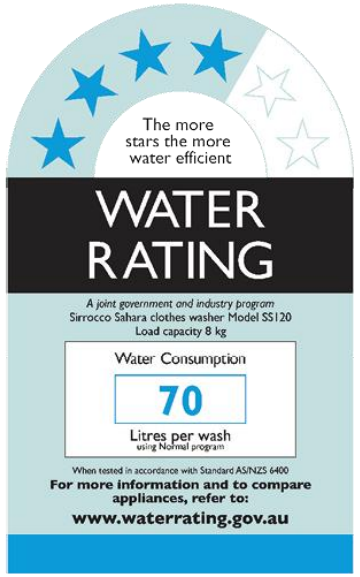
2.5 Water

Potable water consumption will be minimised for the project by selecting very water-efficient fittings, fixtures and appliances. As shown by the BASIX specifications, products were generally selected within 1 star of the top star rating (using the WELS website). For example, toilets can be awarded up to 5 stars, so the architects chose 4-star ratings. Importantly, the top ratings can be very difficult from a cost, availability or functionality perspective. For example, a 5-star toilet requires a basin above the toilet cistern, and this is clearly not suitable for most designs.

2.5.1 Water strategies

The following strategies will be used to reduce potable water consumption. These initiatives may change slightly as detailed design is developed.

- Water efficient fittings and fixtures (especially taps, showers and toilets)
- Water efficient appliances (especially dishwashers)
- Rainwater harvesting and re-use on the site (20 kL minimum, for residential and retail)
- Rainwater reuse for irrigation (lawns/plants) and toilets
- Recycling or reuse (closed loops) of any water required for fire testing.
- Efficient irrigation such as drip irrigation to planters and gardens
- Inclusion of locally indigenous or drought tolerant, “one-drop” plants
- Generous deep-soil allocation
- Generous garden areas and green-roof gardens/planters, with low-water species



2.6 Materials

2.6.1 Material Selection

Materials used in the building industry are responsible for significant waste generation, resource depletion, GHG emissions and water consumption. To minimise these environmental impacts, the following principles will be considered for material selection on the site, as the design progresses:

- Consider Best Practice PVC products (or aim for avoidance of PVC, if possible)
- Design major building components for longevity, adaptation, disassembly, re-use and recycling
- Local procurement to support the local economy and reduce transport emissions
- Design for robustness - review the design and the materials to ensure durability for high-traffic surfaces and high-use fittings.
- Consider and implement 'green steel products', where feasible, from accredited steel makers and fabricators
- Consider and implement cement-replacements in concrete, where feasible, by using low-carbon options and fly ash.

2.6.2 Waste minimisation

A Waste Minimisation Plan has also been prepared to outline best practice waste management during the design, construction and operation of the project. The proposed waste strategy looks at issues such as:

- Establish waste targets (including minimum construction and demolition waste recycling targets).
- 'Design out' waste: Reduce the amount of materials used in the construction processes, wherever practical

- Implement best practice construction waste management plans and engage with the supply chain.
- Provide infrastructure and clear guidance (for the building users) to maximise waste recycling during operation.

The Head Contractor will develop a Construction Waste Management Plan (CWMP) in accordance with waste targets and this will:

- Define responsibilities and actions to prevent, reduce and recover waste
- Provisions for disposal of food and organic waste as per Council requirements for both residential and retail.
- Identify the waste arising from construction and detail waste reuse and recycling routes

2.7 Land Use & Ecology

The project will enhance existing ecological value by reusing a previously developed site. Consequently, the objective of the landscaping and ecology strategies will be to restore the ecological value of the site and use locally indigenous species around the site. This will help to reduce water consumption and also to enhance biodiversity and the restoration of native flora and fauna in the area.

2.8 Emissions

Emissions to water, soil and the sky will be minimised during construction and operation. A CEMP will also be prepared for the site demolition and construction, and the waste emissions will be addressed in this document.

2.8.1 Reduced Peak Discharge to Stormwater

The post-development peak event stormwater discharge from the site will be minimised (to be very close to or less than the pre-development peak event stormwater discharge).

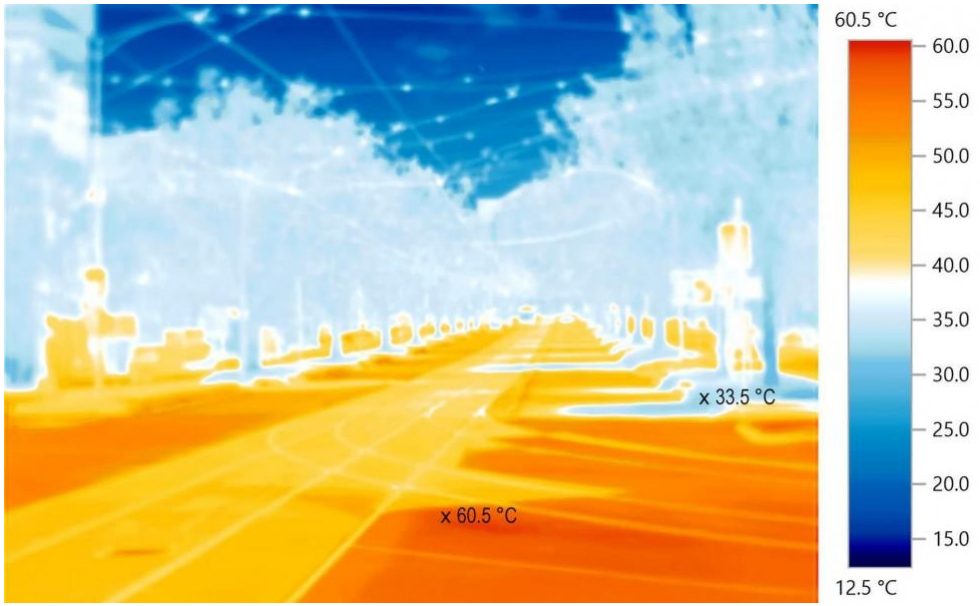
Stormwater discharged from the site will be designed to achieve high levels of pollution removal for pollutants such as total suspended solids, gross pollutants, total nitrogen, total phosphorus, petroleum hydrocarbons and free oils.

2.8.2 Light Pollution

Outdoor lighting on the project will generally be designed in accordance with AS 4282:1997 and external light pollution will be minimised. The reduction in light pollution will alleviate the risk of impacts on neighbours and wildlife. In particular, lights be designed to face predominantly downwards. Lights with upspill or uplighting will be avoided.

2.8.3 Heat Island Effect

Lighter-coloured pavements, walls and roofs (and generous planting) have been proposed, in most locations, as shown in the plans, sections, renders and elevations. This strategy was mainly conceived in order to reduce the potential heat island effect on the site and surrounding areas. Furthermore, this strategy will also improve internal thermal comfort, significantly, in summer. Green roofs and PV will greatly help to minimise heat island effects.



2.8.4 Refrigerant impacts

Refrigerants will be selected to try and target an Ozone Depletion Potential (ODP) of zero. This includes most air conditioning systems and other refrigeration equipment. This may entail various HVAC&R systems and cold/freezer rooms found on the premises.

Environmental impacts from refrigerants leaking into the atmosphere must be minimised and avoided, in order for this objective to be achieved.

2.8.5 Solar Reflectivity

Glass surfaces (and some other cladding materials) can be highly reflective. Various measures will be used to negate this effect and, in particular, low-reflectivity glass will be used, in accordance with council requirements. The main issues with reflectivity will typically occur at the lower levels, since this is where motorists, pedestrians and public transport operators will be focusing their gaze. This zone of peripheral vision is extremely important for solar reflectance, especially for motorists and train/bus drivers.

With this in mind, the building will use exclusively low-reflective materials and glass at the lower levels. This building (and other similar buildings nearby) has been investigated, for potential reflectivity. It was concluded that a conservative ''reflectivity target'' of 20% should be adequate to prevent negative issues with solar reflectance. Most councils support that conservative figure and (reflectivity index permitted for external glazed elements should not exceed a 20% value).

If the 20% reflectivity target is successful for the lower levels, then the higher levels will work as well (or even better) with that same solar reflectivity. Hence, overall, the 20% target should work well, for the proposed facades of the towers.

In addition to the low-reflectivity glazing, various other measures will also be used to negate unwanted reflection. In particular, vertical fins and building articulation will be used, in accordance with council's general recommendations. The additional shading devices have been incorporated for thermal benefits, privacy and reflectivity benefits, at all levels.

2.9 Community

The project will be designed to maximise community benefit. In particular, it will encourage active lifestyles, maintain good pedestrian and cyclist linkages and facilitate ample, safe social interaction. The project will also be designed to minimise other undesirable impacts on the community such as glare and light pollution.

The following strategies will be considered:

- Marketing and education strategies to convey the numerous sustainability practices to wider audiences
- Ensuring that the building does not lead to hazardous or uncomfortable glare to pedestrians, motorists or surrounding buildings
- Minimise light spill to the sky, to protect local wildlife and light pollution.
- Promotion of healthy and active living through various design and education strategies (for example, with cycling storage and facilities)
- Incorporation of crime prevention through environmental design (CPTED)

3. Conclusion

The numerous initiatives outlined in this report demonstrate how the proposed development will incorporate best practice ESD initiatives into its design, construction and ongoing operation. Through a combination of energy, water and other ESD strategies, the project will indeed exceed the minimum requirements for sustainable development.

It is acknowledged that some strategies will need further refinement, during the latter stages of design. Strategies to be explored and refined in the future design stages include:

- Refinement of renewable energy design (such as final PV type and sizing, to optimise all available space – but currently 60 kW or more)
- Energy-efficient building fabric and services to deliver optimal energy savings
- Energy-efficient windows (double-glazing and performance frames) to maximise thermal comfort, natural daylighting and views
- Careful lighting design (further refinement for both energy efficiency and "indoor environment quality")
- Selection of non-toxic materials, finishes, adhesives and products to improve Indoor Environmental Quality (IEQ)
- Final brand and model selection for efficient fittings, fixtures and appliances (noting that better options may be available in 1-2 years)
- Water-reuse balance, with an intelligent synergy between the reuse strategies for rainwater
- Active transport facilities to encourage healthier living while reducing carbon emissions from transport
- Selective procurement of materials and internal finishings (to minimise any possible environmental and social impacts)
- Management and governance procedures (which will improve sustainability outcomes during operation).

As detailed earlier, the project will be designed under the guidance of BASIX, NatHERS, NCC's Section J Energy Efficiency and also Sydney Council's Development Control Plan. Furthermore, the energy testing and calculations suggest that the building will perform very well in relation to thermal comfort, NatHERS, energy demands and greenhouse gas emissions.

4. Appendix 1 – BASIX and ESD Certificates

BASIX™ Certificate

Building Sustainability Index
www.planningportal.nsw.gov.au/development-and-assessment/basix

Multi Dwelling

Certificate number: 1810767M

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 10/09/2020 published by the Department. This document is available at www.planningportal.nsw.gov.au/definitions

Secretary
Date of issue: Friday, 29 August 2025
To be valid, this certificate must be submitted with a development application or lodged with a complying development certificate application within 3 months of the date of issue.

When submitting this BASIX certificate with a development application or complying development certificate application, it must be accompanied by NatHERS certificate 0011489140.

Project summary	
Project name	164-194 William St, Woolloomooloo
Street address	164-172 WILLIAM STREET WOOLLOOMOOLOO 2011
Local Government Area	SYDNEY
Plan type and plan number	Deposited Plan 1049805
Lot No.	52
Section no.	-
No. of residential flat buildings	3
Residential flat buildings: no. of dwellings	227
Multi-dwelling housing: no. of dwellings	0
No. of single dwelling houses	0

Project score		
Water	✔ 53	Target 40
Thermal Performance	✔ Pass	Target Pass
Energy	✔ 68	Target 63
Materials	✔ -86	Target n/a

Certificate Prepared by
Name / Company Name: GREENPERCH PTY LTD
ABN (if applicable): 81679640825

Description of project

Project address	
Project name	164-194 William St, Woolloomooloo
Street address	164-172 WILLIAM STREET WOOLLOOMOOLOO 2011
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Section no.	-

Project type	
No. of residential flat buildings	3
Residential flat buildings: no. of dwellings	227
Multi-dwelling housing: no. of dwellings	0
No. of single dwelling houses	0

Site details	
Site area (m²)	6414
Roof area (m²)	2352
Non-residential floor area (m²)	1463
Residential car spaces	293
Non-residential car spaces	47

Common area landscape	
Common area lawn (m²)	400
Common area garden (m²)	1200
Area of indigenous or low water use species (m²)	300

Assessor details and thermal loads	
Assessor number	DMN/19/1921
Certificate number	0011489140
Climate zone	17

Project score			
Water	✔	53	Target 40
Thermal Performance	✔	Pass	Target Pass
Energy	✔	68	Target 63
Materials	✔	-86	Target n/a

Description of project

The tables below describe the dwellings and common areas within the project

Residential flat buildings - Building 1 William st, 171 dwellings, 21 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
e1001	3	146	0	0	0
e1005	2	84	0	0	0
e104e	2	79	0	0	0
e1103	3	136	0	0	0
e1202	3	156	0	0	0
e1301	3	147	0	0	0
e1305	2	84	0	0	0
e1501	3	247	19	0	0
e201e	3	148	0	0	0
e205e	2	73	0	0	0
e304e	2	79	0	0	0
e403e	3	138	0	0	0
e502e	3	170	0	0	0
e601e	3	148	0	0	0
e605e	2	73	0	0	0
e704e	2	79	0	0	0
e803	3	136	0	0	0
e902	3	156	0	0	0
eD01e	2	98	0	0	0
eM03e	2	104	0	0	0
w102w	2	93	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
e1002	3	156	0	0	0
e101e	3	148	0	0	0
e105e	2	73	0	0	0
e1104	2	79	0	0	0
e1203	3	136	0	0	0
e1302	3	156	0	0	0
e1401	3	171	0	0	0
e1502	3	303	0	0	0
e202e	3	170	0	0	0
e301e	3	148	0	0	0
e305e	2	73	0	0	0
e404e	2	79	0	0	0
e503e	3	138	0	0	0
e602e	3	170	0	0	0
e701e	3	149	0	0	0
e705e	2	73	0	0	0
e804	2	79	0	0	0
e903	3	136	0	0	0
eD02e	3	171	0	0	0
eUG01	2	98	0	0	0
w103w	3	189	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
e1003	3	136	0	0	0
e102e	3	170	0	0	0
e1101	3	147	0	0	0
e1105	2	84	0	0	0
e1204	2	79	0	0	0
e1303	3	136	0	0	0
e1402	3	224	0	0	0
e1601	3	309	0	0	0
e203e	3	138	0	0	0
e302e	3	170	0	0	0
e401e	3	148	0	0	0
e405e	2	73	0	0	0
e504e	2	79	0	0	0
e603e	3	138	0	0	0
e702e	3	156	0	0	0
e801e	3	149	0	0	0
e805	2	84	0	0	0
e904	2	79	0	0	0
eM01e	3	148	0	0	0
eUG02	3	171	0	0	0
w104w	3	182	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
e1004	2	79	0	0	0
e103e	3	138	0	0	0
e1102	3	156	0	0	0
e1201	3	147	0	0	0
e1205	2	84	0	0	0
e1304	2	79	0	0	0
e1403	3	157	0	0	0
e1602	3	310	0	0	0
e204e	2	79	0	0	0
e303e	3	138	0	0	0
e402e	3	170	0	0	0
e501e	3	148	0	0	0
e505e	2	73	0	0	0
e604e	2	79	0	0	0
e703e	3	136	0	0	0
e802e	3	156	0	0	0
e901	3	149	0	0	0
e905	2	84	0	0	0
eM02e	3	170	0	0	0
w101w	1	55	0	0	0
w105w	3	166	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
w106w	2	73	0	0	0
w110w	1	58	0	0	0
w202w	2	93	0	0	0
w206w	2	73	0	0	0
w210w	1	58	0	0	0
w302w	2	93	0	0	0
w306w	2	73	0	0	0
W310w	1	58	0	0	0
w402w	3	183	0	0	0
w406w	1	58	0	0	0
w410w	1	61	0	0	0
w503w	3	179	0	0	0
w507w	2	83	0	0	0
w602w	3	183	0	0	0
w606w	2	88	0	0	0
w701w	3	159	0	0	0
w705w	1	60	0	0	0
w803w	4+	288	0	0	0
wD03w	3	178	0	0	0
wM04w	2	99	0	0	0
wM08w	1	58	0	0	0
wUG02	2	93	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
w107w	1	58	0	0	0
w111w	1	61	0	0	0
w203w	3	189	0	0	0
w207w	1	58	0	0	0
w211w	1	61	0	0	0
w303w	3	189	0	0	0
w307w	1	58	0	0	0
W311w	1	61	0	0	0
w403w	3	179	0	0	0
w407w	1	58	0	0	0
w411w	1	58	0	0	0
w504w	3	166	0	0	0
w508w	2	87	0	0	0
w603w	3	179	0	0	0
w607w	2	83	0	0	0
w702w	3	177	0	0	0
w706w	3	175	0	0	0
w903w	4+	413	0	0	0
wM01w	1	55	0	0	0
wM05w	3	182	0	0	0
wM09W	1	61	0	0	0
wUG03	2	83	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
w108w	1	58	0	0	0
w112w	1	58	0	0	0
w204w	3	182	0	0	0
w208w	1	58	0	0	0
w212w	1	58	0	0	0
w304w	3	182	0	0	0
w308w	1	58	0	0	0
W312w	1	58	0	0	0
w404w	3	166	0	0	0
w408w	1	58	0	0	0
w501w	3	166	0	0	0
w505w	2	73	0	0	0
w509w	2	95	0	0	0
w604w	3	166	0	0	0
w608w	2	87	0	0	0
w703w	3	175	0	0	0
w801w	3	251	0	0	0
wD01w	3	176	0	0	0
wM02w	2	93	0	0	0
wM06w	3	166	0	0	0
wM10W	1	58	0	0	0
wUG04	2	99	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
w109w	1	58	0	0	0
w201w	1	55	0	0	0
w205w	3	166	0	0	0
w209w	1	58	0	0	0
w301w	1	55	0	0	0
w305w	3	166	0	0	0
W309w	1	58	0	0	0
w401w	3	166	0	0	0
w405w	2	73	0	0	0
w409w	1	58	0	0	0
w502w	3	183	0	0	0
w506w	2	88	0	0	0
w601w	3	166	0	0	0
w605w	2	73	0	0	0
w609w	2	95	0	0	0
w704w	3	161	0	0	0
w802w	4+	298	0	0	0
wD02w	3	177	0	0	0
wM03w	2	83	0	0	0
wM07w	1	58	0	0	0
wUG01	1	55	0	0	0

Residential flat buildings - Building 2 - NW, 26 dwellings, 11 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
101	2	80	0	0	0
202	2	83	0	0	0
301	2	80	0	0	0
305	1	63	0	0	0
403	1	63	0	0	0
503	1	63	0	0	0
603	1	63	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
102	2	75	0	0	0
203	1	63	0	0	0
302	2	83	0	0	0
306	1	68	0	0	0
404	1	63	0	0	0
504	1	63	0	0	0
604	1	63	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
103	2	87	0	0	0
204	1	65	0	0	0
303	1	63	0	0	0
401	3	159	0	0	0
501	3	159	0	0	0
601	3	159	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
201	2	80	0	0	0
205	1	67	0	0	0
304	1	65	0	0	0
402	3	162	0	0	0
502	3	162	0	0	0
602	3	162	0	0	0

Residential flat buildings - Building 3 - NE, 30 dwellings, 7 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
ne101	3	119	0	0	0
ne202	2	86	0	0	0
ne302	2	86	0	0	0
ne402	2	86	0	0	0
ne502	2	86	0	0	0
ne602	2	86	0	0	0
ne702	3	178	9	0	0
neG01	2	128	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
ne102	1	47	5	0	0
ne203	1	59	0	0	0
ne303	1	59	0	0	0
ne403	1	59	0	0	0
ne503	1	59	0	0	0
ne603	1	59	0	0	0
ne801	3	181	0	0	0
neG02	2	127	0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
ne103	2	87	0	0	0
ne204	2	87	0	0	0
ne304	2	87	0	0	0
ne404	2	87	0	0	0
ne504	2	87	0	0	0
ne604	2	87	0	0	0
ne802	3	178	9	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
ne201	3	129	0	0	0
ne301	3	129	0	0	0
ne401	3	129	0	0	0
ne501	3	129	0	0	0
ne601	3	129	0	0	0
ne701	3	181	0	0	0
ne901	3	309	8	0	0

Description of project

The tables below describe the dwellings and common areas within the project

Common areas of unit building - Building 1 William st

Common area	Floor area (m²)
Communal Gymnasium East	55

Common areas of unit building - Building 3 - NE

Common area	Floor area (m²)
Communal Gymnasium NE	84

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building 1 William st
    - (a) Buildings
        - (i) Materials
    - (b) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Performance
    - (c) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

2. Commitments for Residential flat buildings - Building 2 - NW
    - (a) Buildings
        - (i) Materials
    - (b) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Performance
    - (c) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

3. Commitments for Residential flat buildings - Building 3 - NE
    - (a) Buildings
        - (i) Materials
    - (b) Dwellings
        - (i) Water

(ii) Energy

(iii) Thermal Performance

(c) Common areas and central systems/facilities

(i) Water

(ii) Energy

4. Commitments for single dwelling houses

(a) Dwellings

(i) Water

(ii) Energy

(iii) Thermal Performance and Materials

5. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water

(ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carriedout. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for Residential flat buildings - Building 1 William st

(a) Buildings

(i) Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the “Floor types”, “External wall types”, “Internal wall types”, “Ceiling and roof types”, “Frames” and “Glazing” tables below.			✔
(b) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all specifications included in the tables below.		✔	
(c) The applicant must construct the floors, walls, roof, ceiling and roof, windows, glazed doors and skylights of the development in accordance with the specifications listed in the tables below. In the case of glazing, a 5% variance from the area values listed in the “Frames” and “Glazing” tables is permitted.	✔	✔	✔
(d) The applicant must show through receipts that the materials purchased for construction are consistent with the specifications listed in the below tables.			✔

Floor types			
Floor type	**Area (m2)**	**Insulation**	**Low emissions option**
suspended floor above enclosed subfloor, frame: suspended concrete slab	3520	foil-foam composite board	-
floors above habitable rooms, frame: suspended concrete slab	23420	-	-

External wall types				
External wall type	**Construction type**	**Area (m2)**	**Low emissions option**	**Insulation**
External wall type 1	concrete panel/ plasterboard,frame:light steel frame	2845	-	fibreglass batts or roll
External wall type 2	brick veneer,frame:light steel frame	2150	-	fibreglass batts or roll
External wall type 3	framed (metal clad),frame:light steel frame	745	-	fibreglass batts or roll

Internal wall types			
Internal wall type	**Construction type**	**Area (m2)**	**Insulation**
Internal wall type 1	plasterboard, frame:light steel frame	17325	-
Internal wall type 2	75 mm AAC panel, frame:light steel frame	5415	fibreglass batts or roll

Reinforcement concrete frames/columns		
Building has reinforced concrete frame/columns?	**Volume (m^3)**	**Low emissions option**
yes	782	-

Ceiling and roof types			
Ceiling and roof type	**Area (m^2)**	**Roof Insulation**	**Ceiling Insulation**
framed - metal roof, frame: light steel frame	735	foil backed blanket	fibreglass batts or roll
concrete - plasterboard internal, frame: light steel frame	695	-	foil-foam composite board

Glazing types			Frame types				
Single glazing (m^2)	**Double glazing (m^2)**	**Triple glazing (m^2)**	**Aluminium frames (m^2)**	**Timber frames (m^2)**	**uPVC frames (m^2)**	**Steel frames (m^2)**	**Composite frames (m^2)**
0	6825	-	6825	0	0	0	0

(b) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
e1601, e1602, w903w	4 star (> 4.5 but <= 6 L/min)	4 star	5 star	5 star	-	5 star	4 star	-	-	-	-	2.5	yes	no

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All other dwellings	4 star (> 4.5 but <= 6 L/min)	4 star	5 star	5 star	-	5 star	4 star	-	-	-	-	-	-	-

	Alternative water source						
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
All dwellings	No alternative water supply	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	Central hot water system (No. 1)	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bathrooms or toilets	Main kitchen
w903w	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	2	no
e1502, e1602, w801w	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1	no
e1403, e1501, e1601, w706w, w803w	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1	yes

	Cooling		Heating		Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bathrooms or toilets	Main kitchen
e1001, e1003, e1005, e101e, e103e, e1101, e1103, e1105, e1201, e1203, e1205, e1301, e1303, e1305, e1401, e201e, e203e, e301e, e303e, e401e, e403e, e501e, e503e, e601e, e603e, e701e, e703e, e801e, e803, e805, e901, e903, e905, eM01e, eM03e, w105w, w205w, w305w, w401w, w404w, w501w, w504w, w601w, w604w, w701w, w704w, wM05w	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	0	yes
All other dwellings	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	0	no

	Individual pool			Individual spa		Appliances other efficiency measures				
Dwelling no.	Pool heating system	Pool Pump	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Dishwasher	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
e1601, e1602, w903w	-	-	-	electric heat pump	yes	induction cooktop & electric oven	4 star	8.0 star	no	no
All other dwellings	-	-	-	-	-	induction cooktop & electric oven	4 star	8.0 star	no	no

(iii) Thermal Performance	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔
(i) The applicant must show on The plans accompanying The development application for The proposed development, The locations of ceiling fans set out in The Assessor Certificate.	✔		
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.		✔	

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
e1001	5.80	7.50	13.300
e1002	5.90	6.90	12.800
e1003	13.80	8.90	22.700

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
e1004	25.40	5.60	31.000
e1005	29.90	7.20	37.100
e101e	10.50	5.50	16.000
e102e	9.50	7.70	17.200
e103e	18.30	17.10	35.400
e104e	16.00	12.60	28.600
e105e	22.70	8.80	31.500
e1101	6.80	7.30	14.100
e1102	6.10	6.90	13.000
e1103	14.00	8.70	22.700
e1104	25.70	5.50	31.200
e1105	30.20	7.00	37.200
e1201	6.90	7.40	14.300
e1202	6.20	6.80	13.000
e1203	16.00	8.80	24.800
e1204	25.40	6.40	31.800
e1205	30.50	7.40	37.900
e1301	8.100	7.50	15.600
e1302	7.40	7.10	14.500
e1303	21.00	9.10	30.100
e1304	28.70	6.60	35.300
e1305	28.70	9.60	38.300
e1401	8.10	4.50	12.600
e1402	4.60	6.70	11.300
e1403	29.30	7.10	36.400
e1501	14.60	17.50	32.100
e1502	19.40	15.40	34.800
e1601	24.90	9.40	34.300
e1602	23.50	11.40	34.900
e201e	10.90	5.30	16.200
e202e	9.90	7.60	17.500

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
e203e	24.10	9.20	33.300
e204e	16.80	12.40	29.200
e205e	23.40	8.60	32.000
e301e	11.20	5.10	16.300
e302e	10.30	7.50	17.800
e303e	23.70	9.60	33.300
e304e	23.30	6.3000	29.600
e305e	30.50	5.50	36.000
e402e	14.80	4.20	19.000
e403e	22.40	10.20	32.600
e404e	23.80	6.20	30.000
e405e	30.70	5.50	36.200
e501e	11.30	5.10	16.400
e502e	14.70	4.30	19.000
e503e	19.40	8.60	28.000
e504e	24.20	6.00	30.200
e505e	30.80	5.60	36.400
e602e	16.90	4.20	21.100
e603e	18.80	9.30	28.100
e604e	24.50	5.60	30.100
e605e	30.80	5.90	36.700
e701e	10.00	4.60	14.600
e702e	6.20	6.70	12.900
e704e	24.90	5.70	30.600
e705e	32.80	5.70	38.500
e801e	9.70	4.80	14.500
e802e	5.70	6.90	12.600
e804	25.00	5.70	30.700
e805	32.300	6.70	39.000
e901	10.40	5.20	15.600
e902	5.80	6.80	12.600

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
e903	13.60	8.80	22.400
e904	25.20	5.80	31.000
e905	29.90	7.30	37.200
eD01e	8.50	11.70	20.200
eD02e	8.10	9.30	17.400
eM01e	5.70	9.20	14.900
eM02e	9.10	8.10	17.200
eM03e	20.70	11.50	32.200
eUG01	8.10	12.60	20.700
eUG02	7.40	9.10	16.500
w101w	19.30	7.50	26.800
w102w	16.10	4.10	20.200
w103w	22.70	1.40	24.100
w104w	4.20	7.20	11.400
w105w	15.90	6.30	22.200
w106w	17.30	12.20	29.500
w107w	16.00	9.70	25.700
w108w	9.00	19.50	28.500
w109w	16.50	8.90	25.400
w110w	17.40	8.50	25.900
w111w	25.40	7.00	32.400
w112w	9.60	10.00	19.600
w201w	19.80	7.00	26.800
w202w	14.10	4.00	18.100
w203w	22.40	1.20	23.600
w204w	7.50	4.20	11.700
w205w	16.20	6.40	22.600
w206w	24.60	7.70	32.300
w207w	16.70	9.50	26.200
w208w	8.20	5.30	13.500
w209w	17.20	8.50	25.700

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
w210w	18.10	8.40	26.500
w211w	25.90	7.30	33.200
w212w	15.50	4.90	20.400
w301w	20.30	6.90	27.200
w302w	14.50	4.30	18.800
w303w	22.90	1.40	24.300
w304w	7.70	4.20	11.900
w305w	16.40	6.40	22.800
w306w	25.80	7.30	33.100
w307w	17.20	9.30	26.500
w308w	8.60	5.10	13.700
W309w	17.60	8.90	26.500
W310w	18.60	8.30	26.900
W311w	26.30	7.30	33.600
W312w	15.80	5.20	21.000
w401w	9.90	6.700	16.600
w402w	4.60	4.80	9.400
w403w	7.90	4.20	12.100
w404w	16.70	6.40	23.100
w406w	17.500	9.20	26.700
w407w	8.90	5.20	14.100
w408w	18.00	8.30	26.300
w409w	18.90	8.30	27.200
w410w	26.30	8.50	34.800
w411w	15.30	5.20	20.500
w501w	9.80	7.00	16.800
w502w	4.30	4.90	9.200
w503w	7.50	4.90	12.400
w504w	17.00	6.10	23.100
w506w	18.60	6.00	24.600
w507w	21.50	7.80	29.300

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
w508w	18.90	4.10	23.000
w509w	19.00	8.80	27.800
w601w	12.70	7.90	20.600
w602w	5.70	4.90	10.600
w603w	8.50	4.40	12.900
w604w	19.20	5.60	24.800
w605w	29.00	7.60	36.600
w606w	23.60	6.70	30.300
w607w	25.50	10.50	36.000
w608w	22.40	4.70	27.100
w609w	21.30	10.70	32.000
w701w	7.50	7.50	15.000
w702w	5.60	6.20	11.800
w703w	7.80	5.20	13.000
w704w	17.20	5.60	22.800
w705w	20.50	8.80	29.300
w706w	26.40	9.90	36.300
w801w	19.00	13.40	32.400
w802w	9.80	6.60	16.400
w803w	19.00	9.00	28.000
w903w	24.80	14.20	39.000
wD01w	5.00	7.50	12.500
wD02w	1.10	7.00	8.100
wD03w	6.30	8.60	14.900
wM01w	13.20	14.20	27.400
wM02w	11.00	7.80	18.800
wM03w	3.40	13.50	16.900
wM04w	11.30	7.90	19.200
wM05w	8.10	7.00	15.100
wM06w	10.60	10.60	21.200
wM07w	18.80	17.20	36.000

	Thermal loads		
Dwelling no.	**Area adjusted heating load (in MJ/m²/yr)**	**Area adjusted cooling load (in MJ/m²/yr)**	**Area adjusted total load (in MJ/m²/yr)**
wM08w	11.20	16.80	28.000
wM09W	18.90	12.10	31.000
wM10W	9.00	9.90	18.900
wUG01	18.70	11.40	30.100
wUG02	19.80	6.30	26.100
wUG03	9.00	19.30	28.300
wUG04	21.70	5.20	26.900
e401e, e601e	11.50	5.20	16.700
e703e, e803	13.50	8.80	22.300
All other dwellings	26.40	7.30	33.700

(c) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	4 star (> 4.5 but <= 6 L/min)	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	20000	To collect run-off from at least: - 500 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 1600 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site
Fire sprinkler system (No. 2)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-
Fire sprinkler system (No. 3)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/ BMS
Lift bank (No. 1)	-	-	light-emitting diode	connected to lift call button	no
Lift bank (No. 2)	-	-	light-emitting diode	connected to lift call button	no
Lift bank (No. 3)	-	-	light-emitting diode	connected to lift call button	no
Lift bank (No. 4)	-	-	light-emitting diode	connected to lift call button	no
Lift bank (No. 5)	-	-	light-emitting diode	connected to lift call button	no
Communal Gymnasium East	air conditioning system	time clock or BMS controlled	light-emitting diode	time clocks	no
Undercover car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	zoned switching with motion sensor	no
Undercover loading dock	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	zoned switching with motion sensor	no
Switch room main	ventilation exhaust only	thermostatically controlled	light-emitting diode	manual on / manual off	no
Bin and Waste Rooms	ventilation exhaust only	-	light-emitting diode	motion sensors	no
Communal rooms east basement	air conditioning system	time clock or BMS controlled	light-emitting diode	motion sensors	no
Plant or service room	ventilation exhaust only	none i.e., continuous	light-emitting diode	manual on / manual off	no
Pump and fire rooms	ventilation exhaust only	thermostatically controlled	light-emitting diode	manual on / manual off	no
Toilets shared facilities	ventilation exhaust only	time clock or BMS controlled	light-emitting diode	motion sensors	no
Communal Dining Room	air conditioning system	time clock or BMS controlled	light-emitting diode	motion sensors	no
Store rooms and cellar	ventilation supply only	none i.e., continuous	light-emitting diode	zoned switching with motion sensor	no
End of Trip facility	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	no

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/ BMS**
Ground floor lobby west - William st	air conditioning system	time clock or BMS controlled	light-emitting diode	motion sensors	no
Ground floor lobby east- William St	air conditioning system	time clock or BMS controlled	light-emitting diode	motion sensors	no
Hallway/lobby B1 william st	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	no

Central energy systems	Type	Specification
Lift bank (No. 1)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 12 number of levels from the bottom of the lift shaft to the top of the lift shaft: 16 number of lifts: 2 lift load capacity: >= 1001 kg but <= 1500kg
Lift bank (No. 2)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 19 number of levels from the bottom of the lift shaft to the top of the lift shaft: 23 number of lifts: 3 lift load capacity: >= 1001 kg but <= 1500kg
Lift bank (No. 5)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 2 number of levels from the bottom of the lift shaft to the top of the lift shaft: 2 number of lifts: 3 lift load capacity: >= 1001 kg but <= 1500kg
Central hot water system (No. 1)	electric heat pump – air sourced	Piping insulation (ringmain & supply risers): (a) Piping external to building: R1.0 (~38 mm); (b) Piping internal to building: R1.0 (~38 mm) (c) Unit Efficiency: 3.5 < COP <= 4.0

2. Commitments for Residential flat buildings - Building 2 - NW

(a) Buildings

(i) Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the “Floor types”, “External wall types”, “Internal wall types”, “Ceiling and roof types”, “Frames” and “Glazing” tables below.			✔
(b) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all specifications included in the tables below.		✔	
(c) The applicant must construct the floors, walls, roof, ceiling and roof, windows, glazed doors and skylights of the development in accordance with the specifications listed in the tables below. In the case of glazing, a 5% variance from the area values listed in the “Frames” and “Glazing” tables is permitted.	✔	✔	✔
(d) The applicant must show through receipts that the materials purchased for construction are consistent with the specifications listed in the below tables.			✔

Floor types

Floor type	Area (m2)	Insulation	Low emissions option
suspended floor above enclosed subfloor, frame: suspended concrete slab	520	foil-foam composite board	-
floors above habitable rooms, frame: suspended concrete slab	2810	-	-

External wall types

External wall type	Construction type	Area (m2)	Low emissions option	Insulation
External wall type 1	concrete panel/ plasterboard,frame:light steel frame	915	-	fibreglass batts or roll
External wall type 2	concrete block/ plasterboard,frame:light steel frame	145	-	fibreglass batts or roll

Internal wall types

Internal wall type	Construction type	Area (m2)	Insulation
Internal wall type 1	plasterboard, frame:light steel frame	2435	-
Internal wall type 2	75 mm AAC panel, frame:light steel frame	755	fibreglass batts or roll

Reinforcement concrete frames/columns		
Building has reinforced concrete frame/columns?	**Volume (m^3)**	**Low emissions option**
yes	141	-

Ceiling and roof types			
Ceiling and roof type	**Area (m^2)**	**Roof Insulation**	**Ceiling Insulation**
concrete - plasterboard internal, frame: light steel frame	930	-	foil-foam composite board

Glazing types			Frame types				
Single glazing (m^2)	**Double glazing (m^2)**	**Triple glazing (m^2)**	**Aluminium frames (m^2)**	**Timber frames (m^2)**	**uPVC frames (m^2)**	**Steel frames (m^2)**	**Composite frames (m^2)**
0	870	-	870	0	0	0	0

(b) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 4.5 but <= 6 L/min)	4 star	5 star	5 star	-	5 star	4 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	**Alternative water supply systems**	**Size**	**Configuration**	**Landscape connection**	**Toilet connection (s)**	**Laundry connection**	**Pool top-up**	**Spa top-up**
All dwellings	No alternative water supply	-	-	-	-	-	-	-

(ii) Energy	**Show on DA plans**	**Show on CC/CDC plans & specs**	**Certifier check**
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔ ✔	✔
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	Central hot water system (No. 1)	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bathrooms or toilets	Main kitchen
401, 402, 501, 502, 601, 602	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	0	yes
All other dwellings	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	0	no

	Individual pool			Individual spa		Appliances other efficiency measures				
Dwelling no.	Pool heating system	Pool Pump	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Dishwasher	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	-	induction cooktop & electric oven	4 star	8.0 star	no	no

(iii) Thermal Performance	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔
(i) The applicant must show on The plans accompanying The development application for The proposed development, The locations of ceiling fans set out in The Assessor Certificate.	✔		
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.		✔	

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
101	16.30	10.90	27.200
102	10.20	12.80	23.000
103	10.00	10.80	20.800
201	4.00	15.40	19.400

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
202	7.90	14.70	22.600
203	14.80	14.50	29.300
204	14.10	13.40	27.500
205	22.60	6.10	28.700
301	4.20	15.30	19.500
302	7.50	15.20	22.700
303	5.60	15.60	21.200
304	13.10	12.90	26.000
305	17.30	7.10	24.400
306	7.50	7.50	15.000
401	6.60	6.30	12.900
402	5.00	7.70	12.700
403	18.60	7.70	26.300
404	24.90	3.90	28.800
501	6.90	6.30	13.200
502	5.20	7.80	13.000
503	18.90	7.60	26.500
504	25.50	3.90	29.400
601	14.20	12.00	26.200
602	14.30	11.10	25.400
603	27.50	9.50	37.000
All other dwellings	28.40	5.50	33.900

(c) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	4 star (> 4.5 but <= 6 L/min)	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 4)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/ BMS**
Community room NW	air conditioning system	time clock or BMS controlled	light-emitting diode	motion sensors	no
Ground floor lobby NW building	air conditioning system	time clock or BMS controlled	light-emitting diode	motion sensors	no
Hallway/lobby NW building	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	no

Central energy systems	Type	Specification
Lift bank (No. 3)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 6 number of levels from the bottom of the lift shaft to the top of the lift shaft: 10 number of lifts: 1 lift load capacity: >= 1001 kg but <= 1500kg

3. Commitments for Residential flat buildings - Building 3 - NE

(a) Buildings

(i) Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the “Floor types”, “External wall types”, “Internal wall types”, “Ceiling and roof types”, “Frames” and “Glazing” tables below.			✔
(b) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all specifications included in the tables below.		✔	
(c) The applicant must construct the floors, walls, roof, ceiling and roof, windows, glazed doors and skylights of the development in accordance with the specifications listed in the tables below. In the case of glazing, a 5% variance from the area values listed in the “Frames” and “Glazing” tables is permitted.	✔	✔	✔
(d) The applicant must show through receipts that the materials purchased for construction are consistent with the specifications listed in the below tables.			✔

Floor types

Floor type	Area (m2)	Insulation	Low emissions option
suspended floor above enclosed subfloor, frame: suspended concrete slab	495	foil-foam composite board	-
floors above habitable rooms, frame: suspended concrete slab	3215	-	-

External wall types

External wall type	Construction type	Area (m2)	Low emissions option	Insulation
External wall type 1	concrete panel/ plasterboard,frame:light steel frame	1135	-	fibreglass batts or roll
External wall type 2	framed (metal clad),frame:light steel frame	125	-	fibreglass batts or roll

Internal wall types

Internal wall type	Construction type	Area (m2)	Insulation
Internal wall type 1	plasterboard, frame:light steel frame	2980	-
Internal wall type 2	75 mm AAC panel, frame:light steel frame	965	fibreglass batts or roll

Reinforcement concrete frames/columns		
Building has reinforced concrete frame/columns?	**Volume (m^3)**	**Low emissions option**
yes	154	-

Ceiling and roof types			
Ceiling and roof type	**Area (m^2)**	**Roof Insulation**	**Ceiling Insulation**
concrete - plasterboard internal, frame: light steel frame	755	-	foil-foam composite board

Glazing types			Frame types				
Single glazing (m^2)	**Double glazing (m^2)**	**Triple glazing (m^2)**	**Aluminium frames (m^2)**	**Timber frames (m^2)**	**uPVC frames (m^2)**	**Steel frames (m^2)**	**Composite frames (m^2)**
0	1085	-	1085	0	0	0	0

(b) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 4.5 but <= 6 L/min)	4 star	5 star	5 star	-	5 star	4 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	**Alternative water supply systems**	**Size**	**Configuration**	**Landscape connection**	**Toilet connection (s)**	**Laundry connection**	**Pool top-up**	**Spa top-up**
All dwellings	No alternative water supply	-	-	-	-	-	-	-

(ii) Energy	**Show on DA plans**	**Show on CC/CDC plans & specs**	**Certifier check**
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔ ✔	✔
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	Central hot water system (No. 1)	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bathrooms or toilets	Main kitchen
ne901	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	3	yes
ne701, ne702, ne801, ne802	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1	yes
ne101, ne201, ne301, ne401, ne501, ne601	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	0	yes

	Cooling		Heating		Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bathrooms or toilets	Main kitchen
All other dwellings	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	1-phase airconditioning - ducted / EER 3.0 - 3.5	0	no

	Individual pool			Individual spa		Appliances other efficiency measures				
Dwelling no.	Pool heating system	Pool Pump	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Dishwasher	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	-	induction cooktop & electric oven	4 star	8.0 star	no	no

(iii) Thermal Performance	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or	✔	✔	✔

(iii) Thermal Performance	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.			
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔
(i) The applicant must show on The plans accompanying The development application for The proposed development, The locations of ceiling fans set out in The Assessor Certificate.	✔		
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.		✔	

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
ne101	10.30	15.70	26.000
ne102	3.10	16.80	19.900
ne103	10.20	18.10	28.300
ne201	7.00	15.50	22.500
ne202	11.50	18.00	29.500
ne203	16.30	17.40	33.700
ne204	9.40	16.90	26.300
ne301	7.30	15.10	22.400
ne302	11.50	17.80	29.300
ne303	18.50	18.60	37.100
ne304	9.90	16.60	26.500
ne401	13.10	9.50	22.600
ne402	18.20	11.30	29.500
ne403	23.80	7.00	30.800
ne404	16.10	8.50	24.600
ne501	13.60	9.30	22.900
ne502	18.70	11.30	30.000
ne503	26.20	7.00	33.200
ne504	16.60	8.00	24.600
ne601	13.90	9.30	23.200
ne602	18.700	11.50	30.200

	Thermal loads		
Dwelling no.	**Area adjusted heating load (in MJ/m²/yr)**	**Area adjusted cooling load (in MJ/m²/yr)**	**Area adjusted total load (in MJ/m²/yr)**
ne603	24.20	6.70	30.900
ne604	19.30	8.40	27.700
ne701	17.50	9.10	26.600
ne702	21.20	8.20	29.400
ne801	27.80	10.60	38.400
ne802	27.70	8.30	36.000
ne901	28	8.6	36.600
neG01	2.40	9.10	11.500
All other dwellings	4.10	7.80	11.900

(c) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	4 star (> 4.5 but <= 6 L/min)	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 5)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/ BMS**
Communal Gymnasium NE	air conditioning system	time clock or BMS controlled	light-emitting diode	time clocks	no
Ground floor lobby NE building	air conditioning system	time clock or BMS controlled	light-emitting diode	motion sensors	no
Hallway/lobby NE building	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	no

Central energy systems	Type	Specification
Lift bank (No. 4)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 10 number of levels from the bottom of the lift shaft to the top of the lift shaft: 13 number of lifts: 2 lift load capacity: >= 1001 kg but <= 1500kg

4. Commitments for single dwelling houses

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install: (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔ ✔	✔ ✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	
(iii) Thermal Performance and Materials	**Show on DA plans**	**Show on CC/CDC plans & specs**	**Certifier check**
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			

(iii) Thermal Performance and Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔
(i) The applicant must show on The plans accompanying The development application for The proposed development, The locations of ceiling fans set out in The Assessor Certificate.	✔		
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.		✔	

5. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	4 star (> 4.5 but <= 6 L/min)	4 star	5 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

Central energy systems	Type	Specification
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 60 peak kW
Other	Building management system installed?: yes	-

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

Nationwide House Energy Rating Scheme®
Class 2 Summary
NatHERS® Certificate No. 0011489140

Generated on 29 Aug 2025 using BERS Pro v5.2.4 (3.23)

Property

Address	164-172 William Street, Woolloomooloo , NSW , 2011
Lot/DP	Lot 52 DP 1049805
NatHERS Climate Zone	17 Sydney RO (Observatory Hill)

Accredited assessor

Name	Martin Pinson
Business name	GREENPERCH
Email	consulting@greenperch.com.au
Phone	0422144603
Accreditation No.	DMN/19/1921

Assessor Accrediting Organisation

Design Matters National

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=sBZayzzjP .
When using either link, ensure you are visiting hstar.com.au

National Construction Code (NCC) requirements

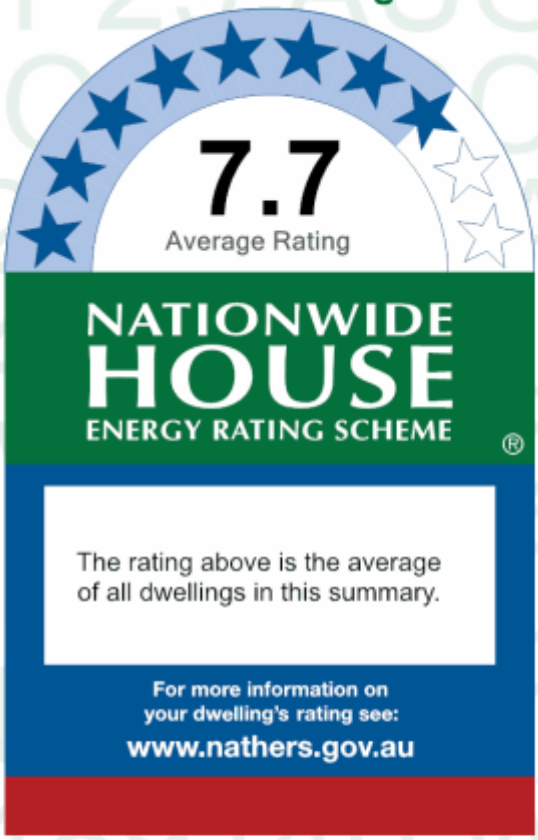
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance Star rating



NCC heating and cooling maximum loads (MJ/m²/p.a.)

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled block average	15.9	8.6
Maximum block limit	N/A	N/A

Whole of Home performance rating

No Whole of Home performance rating conducted for this summary certificate or not completed for all dwellings

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (load limit) [MJ/m²/p.a.]	Cooling load (load limit) [MJ/m²/p.a.]	Total load [MJ/m²/p.a.]	Star Rating	Whole of Home Rating
0012091542-02	101	16.3 (N/A)	10.9 (N/A)	27.2	7.4	0
0012091641-01	102	10.2 (N/A)	12.8 (N/A)	23.1	7.9	0

Summary of all dwellings (continued)

Certificate number and link	Unit Number	Heating load (load limit) [MJ/m^2/p.a.]	Cooling load (load limit) [MJ/m^2/p.a.]	Total load [MJ/m^2/p.a.]	Star Rating	Whole of Home Rating
0012091666-01	103	10.0 (N/A)	10.8 (N/A)	20.7	8.2	0
0011475662-03	201	4.0 (N/A)	15.4 (N/A)	19.3	8.3	0
0011475712-02	202	7.9 (N/A)	14.7 (N/A)	22.6	7.9	0
0011475928-02	203	14.8 (N/A)	14.5 (N/A)	29.3	7.1	0
0012091682-01	204	14.1 (N/A)	13.4 (N/A)	27.5	7.3	0
0012091690-01	205	22.6 (N/A)	6.1 (N/A)	28.7	7.2	0
0011475696-03	301	4.2 (N/A)	15.3 (N/A)	19.4	8.3	0
0011475746-02	302	7.5 (N/A)	15.2 (N/A)	22.7	7.9	0
0011465481-02	303	5.6 (N/A)	15.6 (N/A)	21.2	8.1	0
0011475944-02	304	13.1 (N/A)	12.9 (N/A)	26.1	7.4	0
0012091617-01	305	17.3 (N/A)	7.1 (N/A)	24.5	7.7	0
0012091633-01	306	7.5 (N/A)	7.5 (N/A)	15.0	8.9	0
0011475589-02	401	6.6 (N/A)	6.3 (N/A)	12.9	9.1	0
0011475514-02	402	5.0 (N/A)	7.7 (N/A)	12.7	9.2	0
0011475845-02	403	18.6 (N/A)	7.7 (N/A)	26.3	7.4	0
0011475779-02	404	24.9 (N/A)	3.9 (N/A)	28.7	7.2	0
0011475613-02	501	6.9 (N/A)	6.3 (N/A)	13.2	9.1	0
0011475548-02	502	5.2 (N/A)	7.8 (N/A)	13.0	9.1	0
0011475878-02	503	18.9 (N/A)	7.6 (N/A)	26.5	7.4	0
0011475803-02	504	25.5 (N/A)	3.9 (N/A)	29.4	7.1	0
0011475647-03	601	14.2 (N/A)	12.0 (N/A)	26.2	7.4	0
0011475571-02	602	14.3 (N/A)	11.1 (N/A)	25.4	7.6	0
0011475902-02	603	27.5 (N/A)	9.5 (N/A)	37.1	6.2	0
0011475811-02	604	28.4 (N/A)	5.5 (N/A)	34.0	6.6	0
0011504354-03	e-D01e	8.5 (N/A)	11.7 (N/A)	20.2	8.2	0
0011504438-02	e-D02e	8.1 (N/A)	9.3 (N/A)	17.3	8.6	0
0011504602-03	e-101e	10.5 (N/A)	5.5 (N/A)	16.0	8.8	0
0011504495-02	e-102e	9.5 (N/A)	7.7 (N/A)	17.2	8.6	0
0011504370-02	e-103e	18.3 (N/A)	17.1 (N/A)	35.4	6.4	0
0011504487-05	e-104e	16.0 (N/A)	12.6 (N/A)	28.6	7.2	0
0011504289-03	e-105e	22.7 (N/A)	8.8 (N/A)	31.4	6.9	0
0011504222-02	e-201e	10.9 (N/A)	5.3 (N/A)	16.2	8.7	0
0011504552-02	e-202e	9.9 (N/A)	7.6 (N/A)	17.5	8.6	0
0011504404-02	e-203e	24.1 (N/A)	9.2 (N/A)	33.2	6.7	0

0011504511-05	e-204e	16.8 (N/A)	12.4 (N/A)	29.2	7.1	0
0011504313-03	e-205e	23.4 (N/A)	8.6 (N/A)	32.0	6.8	0
0011504248-02	e-301e	11.2 (N/A)	5.1 (N/A)	16.3	8.7	0
0011504529-02	e-302e	10.3 (N/A)	7.5 (N/A)	17.8	8.5	0
0011504446-02	e-303e	23.7 (N/A)	9.6 (N/A)	33.3	6.7	0
0011504545-05	e-304e	23.3 (N/A)	6.3 (N/A)	29.5	7.1	0
0011504347-03	e-305e	30.5 (N/A)	5.5 (N/A)	36.0	6.4	0
0011504271-02	e-401e	11.5 (N/A)	5.2 (N/A)	16.7	8.7	0
0011504578-02	e-402e	14.8 (N/A)	4.2 (N/A)	19.0	8.4	0
0011504479-02	e-403e	22.4 (N/A)	10.2 (N/A)	32.5	6.8	0
0011504610-05	e-404e	23.8 (N/A)	6.2 (N/A)	30.0	7	0
0011504362-03	e-405e	30.7 (N/A)	5.5 (N/A)	36.3	6.3	0
0011504586-03	e-501e	11.3 (N/A)	5.1 (N/A)	16.4	8.7	0
0011504230-02	e-502e	14.7 (N/A)	4.3 (N/A)	18.9	8.4	0
0011504503-02	e-503e	19.4 (N/A)	8.6 (N/A)	28.1	7.2	0
0011504644-05	e-504e	24.2 (N/A)	6.0 (N/A)	30.1	6.9	0
0011504396-03	e-505e	30.8 (N/A)	5.6 (N/A)	36.4	6.3	0
0011504321-02	e-601e	11.5 (N/A)	5.2 (N/A)	16.7	8.7	0
0011504214-02	e-602e	16.9 (N/A)	4.2 (N/A)	21.1	8.1	0
0011504560-02	e-603e	18.8 (N/A)	9.3 (N/A)	28.1	7.2	0
0011504628-05	e-604e	24.5 (N/A)	5.6 (N/A)	30.1	6.9	0
0011504420-03	e-605e	30.8 (N/A)	5.9 (N/A)	36.8	6.3	0
0011504297-02	e-701e	10.0 (N/A)	4.6 (N/A)	14.6	8.9	0
0011504263-02	e-702e	6.2 (N/A)	6.7 (N/A)	12.9	9.1	0
0011504537-02	e-703e	13.5 (N/A)	8.8 (N/A)	22.2	7.9	0
0011504636-05	e-704e	24.9 (N/A)	5.7 (N/A)	30.6	6.9	0
0011504453-04	e-705e	32.8 (N/A)	5.7 (N/A)	38.5	6.1	0
0011507621-02	e-801e	9.7 (N/A)	4.8 (N/A)	14.5	8.9	0
0011504255-02	e-802e	5.7 (N/A)	6.9 (N/A)	12.6	9.2	0
0012091815-01	e-803e	13.5 (N/A)	8.8 (N/A)	22.3	7.9	0
0012091823-04	e-804e	25.0 (N/A)	5.7 (N/A)	30.7	6.9	0
0012091831-01	e-805e	32.3 (N/A)	6.7 (N/A)	39.0	6	0
0012091849-01	e-901e	10.4 (N/A)	5.2 (N/A)	15.5	8.8	0
0012091856-01	e-902e	5.8 (N/A)	6.8 (N/A)	12.6	9.2	0
0012091872-01	e-903e	13.6 (N/A)	8.8 (N/A)	22.5	7.9	0
0012091898-04	e-904e	25.2 (N/A)	5.8 (N/A)	30.9	6.9	0
0012091914-01	e-905e	29.9 (N/A)	7.3 (N/A)	37.2	6.2	0
0012091930-01	e-1001e	5.8 (N/A)	7.5 (N/A)	13.3	9.1	0

0012091948-01	e-1002e	5.9 (N/A)	6.9 (N/A)	12.8	9.2	0
0012091963-01	e-1003e	13.8 (N/A)	8.9 (N/A)	22.7	7.9	0
0012091989-03	e-1004e	25.4 (N/A)	5.6 (N/A)	31.0	6.9	0
0012092003-01	e-1005e	29.9 (N/A)	7.2 (N/A)	37.1	6.2	0
0012092029-01	e-1101e	6.8 (N/A)	7.3 (N/A)	14.0	9	0
0012092045-01	e-1102e	6.1 (N/A)	6.9 (N/A)	13.0	9.1	0
0012092078-01	e-1103e	14.0 (N/A)	8.7 (N/A)	22.7	7.9	0
0012092102-03	e-1104e	25.7 (N/A)	5.5 (N/A)	31.1	6.9	0
0012092144-01	e-1105e	30.2 (N/A)	7.0 (N/A)	37.2	6.2	0
0012092177-01	e-1201e	6.9 (N/A)	7.4 (N/A)	14.3	8.9	0
0012092185-01	e-1202e	6.2 (N/A)	6.8 (N/A)	13.0	9.1	0
0012092193-01	e-1203e	16.0 (N/A)	8.8 (N/A)	24.8	7.7	0
0012092201-03	e-1204e	25.4 (N/A)	6.4 (N/A)	31.8	6.8	0
0012092219-01	e-1205e	30.5 (N/A)	7.4 (N/A)	37.9	6.1	0
0012092227-01	e-1301e	8.1 (N/A)	7.5 (N/A)	15.5	8.8	0
0012092235-01	e-1302e	7.4 (N/A)	7.1 (N/A)	14.5	8.9	0
0012092243-01	e-1303e	21.0 (N/A)	9.1 (N/A)	30.0	7	0
0012092250-04	e-1304e	28.7 (N/A)	6.6 (N/A)	35.4	6.4	0
0012092276-01	e-1305e	28.7 (N/A)	9.6 (N/A)	38.3	6.1	0
0012092284-01	e-1401e	8.1 (N/A)	4.5 (N/A)	12.6	9.2	0
0012091716-01	e-1402e	4.6 (N/A)	6.7 (N/A)	11.2	9.4	0
0012091732-01	e-1403e	29.3 (N/A)	7.1 (N/A)	36.4	6.3	0
0012091740-02	e-1501e	14.6 (N/A)	17.5 (N/A)	32.1	6.8	0
0012091757-02	e-1502e	19.4 (N/A)	15.4 (N/A)	34.7	6.5	0
0012091765-02	e-1601e	24.9 (N/A)	9.4 (N/A)	34.3	6.6	0
0012091799-02	e-1602e	23.5 (N/A)	11.4 (N/A)	34.9	6.5	0
0011504594-03	e-M01e	5.7 (N/A)	9.2 (N/A)	14.9	8.9	0
0011504461-02	e-M02e	9.1 (N/A)	8.1 (N/A)	17.1	8.6	0
0011504339-02	e-M03e	20.7 (N/A)	11.5 (N/A)	32.2	6.8	0
0011504388-03	e-UG01e	8.1 (N/A)	12.6 (N/A)	20.6	8.2	0
0011504412-02	e-UG02e	7.4 (N/A)	9.1 (N/A)	16.5	8.7	0
0011494457-04	ne-101	10.3 (N/A)	15.7 (N/A)	26.0	7.5	0
0011494317-03	ne-102	3.1 (N/A)	16.8 (N/A)	19.9	8.3	0
0011494218-01	ne-103	10.2 (N/A)	18.1 (N/A)	28.2	7.2	0
0011494390-03	ne-201	7.0 (N/A)	15.5 (N/A)	22.5	7.9	0
0011494341-03	ne-202	11.5 (N/A)	18.0 (N/A)	29.5	7.1	0
0011494309-03	ne-203	16.3 (N/A)	17.4 (N/A)	33.7	6.6	0
0011494234-03	ne-204	9.4 (N/A)	16.9 (N/A)	26.3	7.4	0

0011494424-04	ne-301	7.3 (N/A)	15.1 (N/A)	22.4	7.9	0
0011494358-03	ne-302	11.5 (N/A)	17.8 (N/A)	29.3	7.1	0
0011494333-03	ne-303	18.5 (N/A)	18.6 (N/A)	37.1	6.2	0
0011494259-03	ne-304	9.9 (N/A)	16.6 (N/A)	26.5	7.4	0
0011494473-03	ne-401	13.1 (N/A)	9.5 (N/A)	22.6	7.9	0
0011494382-03	ne-402	18.2 (N/A)	11.3 (N/A)	29.5	7.1	0
0011475977-03	ne-403	23.8 (N/A)	7.0 (N/A)	30.8	6.9	0
0011494275-03	ne-404	16.1 (N/A)	8.5 (N/A)	24.5	7.7	0
0011494465-03	ne-501	13.6 (N/A)	9.3 (N/A)	22.8	7.9	0
0011494432-03	ne-502	18.7 (N/A)	11.3 (N/A)	30.0	7	0
0012091955-02	ne-503	26.2 (N/A)	7.0 (N/A)	33.2	6.7	0
0012091971-02	ne-504	16.6 (N/A)	8.0 (N/A)	24.6	7.7	0
0011494416-03	ne-601	13.9 (N/A)	9.3 (N/A)	23.3	7.8	0
0012091997-02	ne-602	18.7 (N/A)	11.5 (N/A)	30.2	6.9	0
0012092011-02	ne-603	24.2 (N/A)	6.7 (N/A)	30.9	6.9	0
0012092037-02	ne-604	19.3 (N/A)	8.4 (N/A)	27.6	7.3	0
0012092052-02	ne-701	17.5 (N/A)	9.1 (N/A)	26.7	7.4	0
0012092060-02	ne-702	21.2 (N/A)	8.2 (N/A)	29.4	7.1	0
0012092094-02	ne-801	27.8 (N/A)	10.6 (N/A)	38.4	6.1	0
0012092110-02	ne-802	27.7 (N/A)	8.3 (N/A)	36.0	6.4	0
0012092136-03	ne-901	28.0 (N/A)	8.6 (N/A)	36.6	6.3	0
0012091559-03	ne-g01	2.4 (N/A)	9.1 (N/A)	11.5	9.3	0
0012092169-02	ne-g02	4.1 (N/A)	7.8 (N/A)	12.0	9.3	0
0012091567-02	w-D01w	5.0 (N/A)	7.5 (N/A)	12.4	9.2	0
0012092383-01	w-D02w	1.1 (N/A)	7.0 (N/A)	8.1	9.8	0
0012092391-01	w-D03w	6.3 (N/A)	8.6 (N/A)	14.9	8.9	0
0011506540-03	w-M01w	13.2 (N/A)	14.2 (N/A)	27.4	7.3	0
0011506557-02	w-M02w	11.0 (N/A)	7.8 (N/A)	18.9	8.4	0
0011507555-02	w-M03w	3.4 (N/A)	13.5 (N/A)	16.9	8.6	0
0011507373-03	w-M04w	11.3 (N/A)	7.9 (N/A)	19.2	8.4	0
0011506870-03	w-M05w	8.1 (N/A)	7.0 (N/A)	15.1	8.9	0
0011506607-03	w-M06w	10.6 (N/A)	10.6 (N/A)	21.1	8.1	0
0011506532-02	w-M07w	18.8 (N/A)	17.2 (N/A)	36.0	6.4	0
0012092300-01	w-M08w	11.2 (N/A)	16.8 (N/A)	28.0	7.3	0
0012092326-01	w-M09w	18.9 (N/A)	12.1 (N/A)	31.0	6.9	0
0012092359-02	w-M10w	9.0 (N/A)	9.9 (N/A)	18.9	8.4	0
0011506524-03	w-UG01w	18.7 (N/A)	11.4 (N/A)	30.0	7	0
0011506631-02	w-UG02w	19.8 (N/A)	6.3 (N/A)	26.1	7.4	0

0011506797-02	w-UG03w	9.0 (N/A)	19.3 (N/A)	28.2	7.2	0
0011506847-03	w-UG04w	21.7 (N/A)	5.2 (N/A)	26.9	7.4	0
0011506581-03	w-101w	19.3 (N/A)	7.5 (N/A)	26.8	7.4	0
0011506573-02	w-102w	16.1 (N/A)	4.1 (N/A)	20.2	8.2	0
0011507589-02	w-103w	22.7 (N/A)	1.4 (N/A)	24.0	7.8	0
0011507399-02	w-104w	4.2 (N/A)	7.2 (N/A)	11.4	9.3	0
0011506789-02	w-105w	15.9 (N/A)	6.3 (N/A)	22.2	7.9	0
0011506680-02	w-106w	17.3 (N/A)	12.2 (N/A)	29.5	7.1	0
0011506904-02	w-107w	16.0 (N/A)	9.7 (N/A)	25.8	7.5	0
0011506623-02	w-108w	9.0 (N/A)	19.5 (N/A)	28.4	7.2	0
0011506565-02	w-109w	16.5 (N/A)	8.9 (N/A)	25.4	7.6	0
0012092268-01	w-110w	17.4 (N/A)	8.5 (N/A)	25.9	7.5	0
0012091708-01	w-111w	25.4 (N/A)	7.0 (N/A)	32.4	6.8	0
0012091724-02	w-112w	9.6 (N/A)	10.0 (N/A)	19.6	8.3	0
0011506615-02	w-201w	19.8 (N/A)	7.0 (N/A)	26.8	7.4	0
0011506656-02	w-202w	14.1 (N/A)	4.0 (N/A)	18.1	8.4	0
0011507365-02	w-203w	22.4 (N/A)	1.2 (N/A)	23.6	7.8	0
0011507423-02	w-204w	7.5 (N/A)	4.2 (N/A)	11.6	9.3	0
0011506813-02	w-205w	16.2 (N/A)	6.4 (N/A)	22.6	7.9	0
0011506714-02	w-206w	24.6 (N/A)	7.7 (N/A)	32.3	6.8	0
0011506862-02	w-207w	16.7 (N/A)	9.5 (N/A)	26.2	7.4	0
0011506649-02	w-208w	8.2 (N/A)	5.3 (N/A)	13.5	9.1	0
0011506599-02	w-209w	17.2 (N/A)	8.5 (N/A)	25.7	7.5	0
0012091773-01	w-210w	18.1 (N/A)	8.4 (N/A)	26.5	7.4	0
0012091781-01	w-211w	25.9 (N/A)	7.3 (N/A)	33.3	6.7	0
0012091807-02	w-212w	15.5 (N/A)	4.9 (N/A)	20.3	8.2	0
0011507530-02	w-301w	20.3 (N/A)	6.9 (N/A)	27.2	7.4	0
0011507357-02	w-302w	14.5 (N/A)	4.3 (N/A)	18.8	8.4	0
0011507381-02	w-303w	22.9 (N/A)	1.4 (N/A)	24.3	7.7	0
0011507449-02	w-304w	7.7 (N/A)	4.2 (N/A)	11.8	9.3	0
0011507613-02	w-305w	16.4 (N/A)	6.4 (N/A)	22.8	7.9	0
0011506748-02	w-306w	25.8 (N/A)	7.3 (N/A)	33.1	6.7	0
0011506896-02	w-307w	17.2 (N/A)	9.3 (N/A)	26.5	7.4	0
0011506672-02	w-308w	8.6 (N/A)	5.1 (N/A)	13.7	9	0
0012091864-01	w-309w	17.6 (N/A)	8.9 (N/A)	26.5	7.4	0
0012091880-01	w-310w	18.6 (N/A)	8.3 (N/A)	26.8	7.4	0
0012091906-01	w-311w	26.3 (N/A)	7.3 (N/A)	33.7	6.6	0
0012091922-02	w-312w	15.8 (N/A)	5.2 (N/A)	21.1	8.1	0

0011507506-02	w-401w	9.9 (N/A)	6.7 (N/A)	16.6	8.7	0
0011507407-02	w-402w	4.6 (N/A)	4.8 (N/A)	9.3	9.6	0
0011507415-02	w-403w	7.9 (N/A)	4.2 (N/A)	12.1	9.2	0
0011507464-02	w-404w	16.7 (N/A)	6.4 (N/A)	23.1	7.9	0
0011506854-06	w-405w	26.4 (N/A)	7.3 (N/A)	33.7	6.6	0
0011506771-02	w-406w	17.5 (N/A)	9.2 (N/A)	26.8	7.4	0
0011506664-02	w-407w	8.9 (N/A)	5.2 (N/A)	14.1	8.9	0
0011506706-02	w-408w	18.0 (N/A)	8.3 (N/A)	26.3	7.4	0
0012092086-01	w-409w	18.9 (N/A)	8.3 (N/A)	27.3	7.3	0
0012092128-01	w-410w	26.3 (N/A)	8.5 (N/A)	34.8	6.5	0
0012092151-02	w-411w	15.3 (N/A)	5.2 (N/A)	20.5	8.2	0
0011507563-02	w-501w	9.8 (N/A)	7.0 (N/A)	16.8	8.7	0
0011507431-02	w-502w	4.3 (N/A)	4.9 (N/A)	9.3	9.6	0
0011507456-02	w-503w	7.5 (N/A)	4.9 (N/A)	12.4	9.2	0
0011507498-02	w-504w	17.0 (N/A)	6.1 (N/A)	23.2	7.9	0
0011506755-01	w-505w	26.4 (N/A)	7.3 (N/A)	33.7	6.6	0
0011506805-04	w-506w	18.6 (N/A)	6.0 (N/A)	24.5	7.7	0
0011506698-03	w-507w	21.5 (N/A)	7.8 (N/A)	29.3	7.1	0
0011506730-04	w-508w	18.9 (N/A)	4.1 (N/A)	23.0	7.9	0
0012101267-03	w-509w	19.0 (N/A)	8.8 (N/A)	27.7	7.3	0
0011507597-03	w-601w	12.7 (N/A)	7.9 (N/A)	20.6	8.2	0
0011507472-02	w-602w	5.7 (N/A)	4.9 (N/A)	10.6	9.4	0
0011507480-03	w-603w	8.5 (N/A)	4.4 (N/A)	12.9	9.1	0
0011507522-03	w-604w	19.2 (N/A)	5.6 (N/A)	24.8	7.7	0
0011506888-02	w-605w	29.0 (N/A)	7.6 (N/A)	36.5	6.3	0
0011506839-04	w-606w	23.6 (N/A)	6.7 (N/A)	30.4	6.9	0
0011506722-03	w-607w	25.5 (N/A)	10.5 (N/A)	36.0	6.4	0
0011506763-04	w-608w	22.4 (N/A)	4.7 (N/A)	27.1	7.4	0
0012101275-02	w-609w	21.3 (N/A)	10.7 (N/A)	32.1	6.8	0
0011507571-02	w-701w	7.5 (N/A)	7.5 (N/A)	15.0	8.9	0
0011507605-02	w-702w	5.6 (N/A)	6.2 (N/A)	11.8	9.3	0
0011507514-03	w-703w	7.8 (N/A)	5.2 (N/A)	13.0	9.1	0
0011507548-03	w-704w	17.2 (N/A)	5.6 (N/A)	22.7	7.9	0
0012092318-02	w-705w	20.5 (N/A)	8.8 (N/A)	29.3	7.1	0
0012092367-02	w-706w	26.4 (N/A)	9.9 (N/A)	36.3	6.3	0
0012092409-02	w-801w	19.0 (N/A)	13.4 (N/A)	32.3	6.8	0
0012092342-01	w-802w	9.8 (N/A)	6.6 (N/A)	16.5	8.7	0
0012092375-02	w-803w	19.0 (N/A)	9.0 (N/A)	28.0	7.3	0

0012092292-02	w-903w	24.8 (N/A)	14.2 (N/A)	39.0	6	0

Explanatory notes

About this ratings

The thermal performance star rating in this Certificate is the average rating of all NCC Class 2 dwellings in an apartment block. Individual unit ratings are listed in the 'Summary of all dwellings' section of this Certificate.
NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the energy loads and societal cost. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads.
For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

Accredited Assessors

For high quality NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.
Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.
Licensed assessors in the Australian Capital Territory (ACT) can produce assessments for regulatory purposes only, using endorsed software, as listed on the ACT licensing register.
Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in certificates is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.
The predicted annual energy use, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.
Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, behaviour, appliance performance, indoor air temperature and local climate.
Not all assumptions made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.