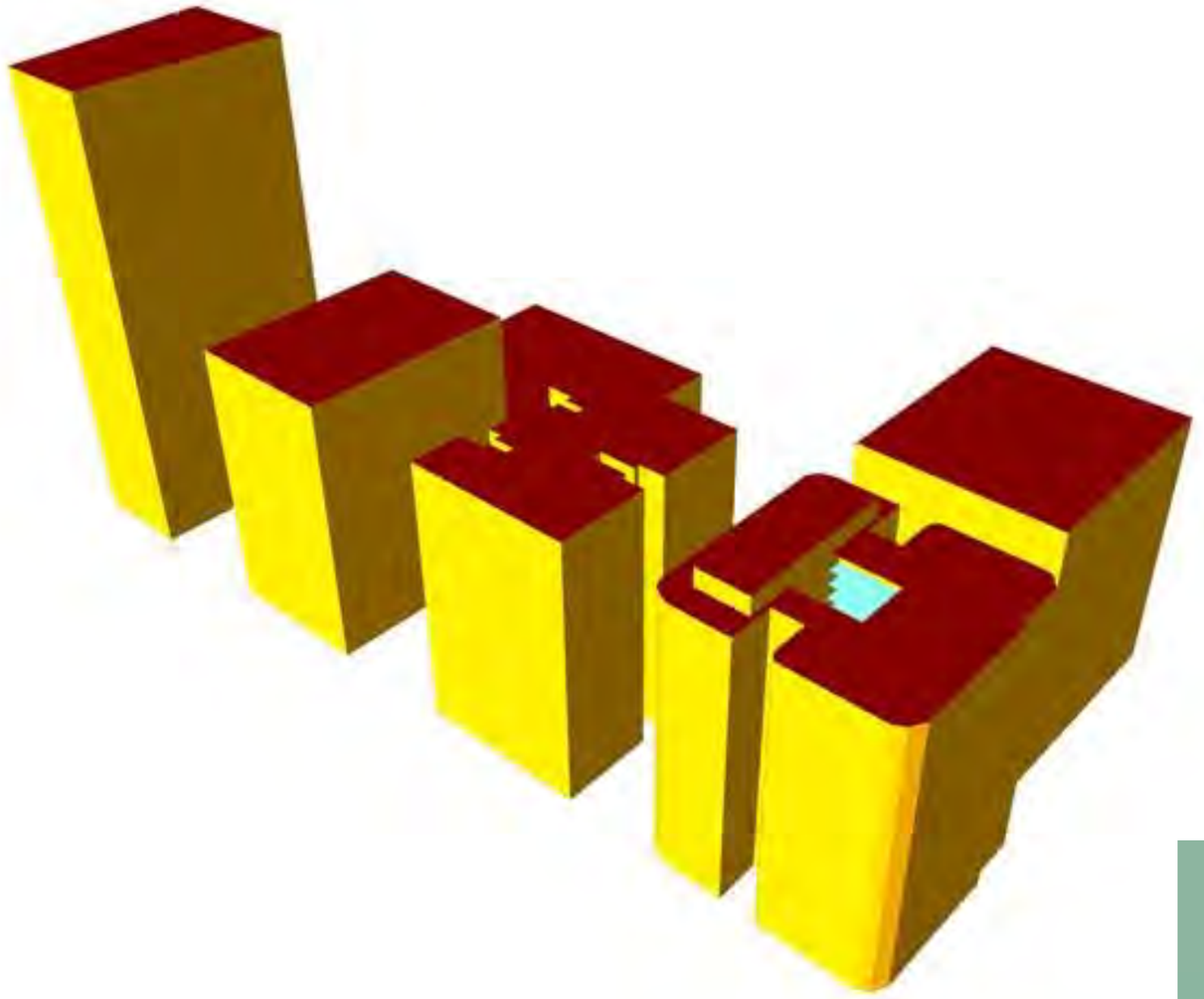

Central Park, Block 4N

ESD Report for SSDA

Green Star, BASIX and Section J (Parts J1 and J2)

27th October 2014
Revision 02

WSP | Built Ecology

Quality Management

Issue/Revision	Issue 01	Revision 01	Revision 02	Revision 03	Revision 04
Remarks	Draft for comment— BASIX, NatHERS and Section J results to be included in final SSDA report.	Final for SSDA Issue	Final for SSDA Issue - Comments from Foster and Partners incorporated		
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Table of Contents

1. Introduction

Introduction and Purpose of Report

The State Significant Development Application seeks approval for the redevelopment of Block 4N as a mixed use building, with associated non-residential/retail uses located on ground floor, consistent with the Concept Plan. Specifically, the proposal includes the following uses, as shown on the Architectural Drawing at Attachment B (note: GFA areas only have been included below):

- Residential – 3,518 m^2 located on levels 11 to 16 consisting of 48 permanent residential apartments
- Retail – 236 m^2 located on the ground level with frontage to Central Park Ave
- Hotel – 13,986 m^2 located from ground to H18 – approximately 283 hotel rooms
- Commercial – 6,146 m^2 located on levels 5 to 10
- Childcare Centre (shell space) – 1,080m^2 located on level 3 and 4.
- Existing Australia Hotel and Terraces (Heritage Pub and Terraces) – 789 m^2

The proposal has a total GFA of 25,755 m^2 of which 22,237 m^2 is to be used for non-residential purposes and 3,518 m^2 is to be used for residential purposes in accordance with the Concept Plan (MP 06_0171 MOD9).

Hotel facilities, including concierge, storage, swimming pool, spa, gym, conference facilities, will be located within the building. The hotel swimming pool, spa and gym will also be made available to permanent residents. Separate entries and lobbies are proposed to the commercial office, childcare, hotel and permanent residential.

The existing Australia Hotel and adjoining Abercrombie Street terraces will be retained, with the design creating a publicly accessible courtyard behind the terraces, accessible from Broadway and Abercrombie Street. A combined basement below Block 1 and 4N is proposed, that will accommodate all car parking, bicycle parking, residential and commercial storage, waste handling, back of house facilities, building plant and services. The basement will have a connection into Block 4S and Central Park's Central Thermal Plant. Service Vehicle loading is provided via the Abercrombie Street access ramp, and car park access for residents, hotel guests, office, retail and childcare drop off carspaces provided via Central Park Avenue. The basement will accommodate a total of 130 car parking spaces for the proposed Block 4N use. Additional spaces are provided within the basement that will service Block 1 and the Brewery Yard building as shown on the Architectural Plans. The following report has been developed in line with the Secretary's Environmental Assessment Requirements (SEARS) Section 78A(8A) of the Environmental Planning and Assessment, application number SSD6 673, and in line with the "Key Issue—8. Ecologically sustainable development".

This report details the Ecologically Sustainable Development (ESD) features included in the design of Block 4N and it sets out the ESD design criteria adopted in the following areas in order to provide the best environmental outcome for the building:

- Ecologically Sustainable Development (ESD) Initiatives
- Green Star Strategy
- BASIX Certification Strategy and Inputs, including NatHERS thermal comfort modelling parameters
- National Construction Code 2014 Section J Part J1 and J2 compliance strategy

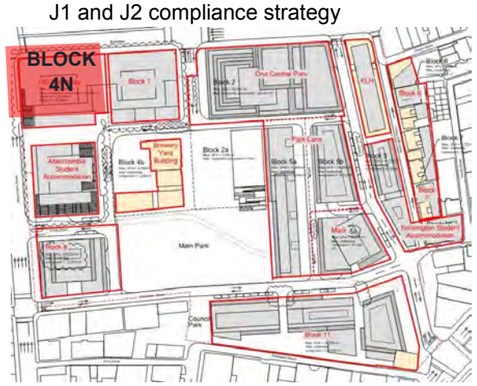

Figure 1: Location of Block 4N in Central Park

Planning Requirements and ESD

As a mixed use development, there are a number of planning tools which are applicable. For the residential component these include:

- BASIX—The Building Sustainability Index. This is an online tool which replaces relevant Parts of Section J Energy Efficiency of Volume One of the National Construction Code (NCC) Series in New South Wales
- SEPP 65—State Environmental Planning Policy 65 and its associated Residential Flat Design Code (RFDC), which relates to the design quality of residential development amenity

This report does not consider compliance with SEPP65. SEPP65 analysis is included in a separate report (managed by JBA). The non-residential areas which are mechanically conditioned will need to comply with Section J of Volume 1 of National Construction Code of Australia 2014 (NCC).

As part of the Central Park Precinct, the development is also required to target a 5 Star Green Star Design and As-Built under 1 of the following 3 tools, subject to meeting the eligibility criteria of those tools:

- Green Star Office
- Green Star Multi Unit Residential
- Green Star Retail Centre

The GBCA (Green Building Council of Australia) has provided a formalised eligibility response (see Appendix G) that the building does not meet the eligibility criteria of any of the above 3 tools. Therefore, to demonstrate the building meets the high level of environmentally sustainable design performance expected of a building with a 5 Star Green Star rating, a Green Star 'Principles Led' approach has been followed, which demonstrates that the ESD initiatives implemented in this building's design are equivalent to a 5 Star Green Star development. The 'Principles Led' approach has been based on the following:

Residential

- Key and relevant targets found in The Green Star Multi Unit Residential (MURT) v1 tool

Office

- Key and relevant targets found in the Green Star Office v3 Tool

Hotel

- Key and relevant targets found in The Green Star Multi Unit Residential (MURT) V1 tool; and
- Key and relevant targets found in the Green Star Public Buildings v1 Tool.

The residential, office and hotel areas comprise 91% of the GFA of the building, i.e. 11% more than the minimum 90% assessed under a Green Star Tool. All other areas (i.e. the restaurant, childcare and retail areas) will also incorporate ESD initiatives in their design.

Sources of Information

The following sources of information were used:

- SSDA architectural drawings for the tower by Foster and Partners, drawing numbers: PA-A4-2050 to 53, PA-A4-2250 to 53, PA-A4-3500 to 03, PA-A4-3770 to 72, 75-78, 80-82, 85-86, all Revision 00.
- DA architectural drawings for the basement by PTW, drawing numbers: PA-A4-1755 to 59, all Revision 00.
- Discussions with WSP Mechanical, Electrical and Hydraulics
- The BASIX online tool and help notes: www.basix.nsw.gov.au
- NCC 2014
- Green Star Manuals

2. ESD Initiatives—Energy and Water efficiency

A key ESD feature is the location of the building within a precinct that produces a proportion of its own electricity via a tri-generation plant incorporated into a central thermal plant (CTP). Waste heat from the tri-generation plant is used to generate a proportion of the space and domestic hot water (DHW) heating and comfort cooling energy needs of the precinct. In addition, a recycled water treatment plant (RWTP) collects wastewater from all of the buildings in the precinct and provides Grade A water to meet all of the non-potable water uses in the precinct.

Energy Efficiency

The CTP has been designed to supply chilled water (CHW) for comfort cooling, and heating hot water (HHW) for space and domestic hot water (DHW) heating.

The CTP has been optimised to reduce energy and water consumption through the inclusion of a tri-generation system that will reduce reliance on the electricity grid and the utilisation of recycled water from the RWTP to meet the heat rejection requirements, respectively.

CHW and HHW from the CTP will be reticulated around the precinct to individual blocks via an external piping network installed in pre-defined stages. Reticulation routes include buried trench sections and pipework runs exposed within basement levels.

Block 4N will be connected to the CTP to meets its HHW and DHW demands. The electricity used by the base building will also be supplemented by electricity provided by the trigeneration engine. It is expected that this will provide significant GHG emissions savings.

Residential Portion

The requirement for active space heating and comfort cooling has been reduced effectively based on the natural ventilation strategy, location and thermal properties of fixed and openable glazing, thermal properties of the building fabric and external shading.

This is demonstrated by the BASIX (thermal comfort) performance outlined. The target baseline heating and cooling loads under BASIX are estimated to be:

- Maximum heating load: 50 MJ/m^2
- Maximum cooling load: 41 MJ/m^2

For Green Star Ene Conditional requirement:

- Total average heating and cooling load for all apartments should be at least 10% lower than the maximum BASIX thermal comfort loads, i.e. 81.9 MJ/m^2.

All apartments will be provided with electricity authority sub-metering to facilitate effective energy monitoring. Subject to implementation of smart metering systems, this supports the ability to affect behavioural change in the way that the occupants utilise air conditioning and lighting.

Non Residential Portion

Electricity sub-metering will be provided for lighting, air conditioning and power based on the tenancy sub-divisions.

The office space will be designed to achieve a minimum 4.5 star base building NABERS Energy rating and a minimum Grade A PCA rating. The hotel will be designed to achieve a 4.5 star NABERS Energy for Hotels.

Water Efficiency

The RWTP has been designed to meet all non-potable water demands in the precinct. Waste water from toilets, showers, sinks, and also rainwater and sewer mining will be treated to Grade A water quality levels to meet toilet flushing, laundry, cooling tower water make up, irrigation and general washdown demands.

Block 4N will be connected to the RWTP which will lead to high reduction in potable water consumption.

Residential Portion

Water fixtures and fittings will be specified to high Water Efficiency Labelling Scheme (WELS) rating. The minimum WELS ratings of the fittings and fixtures are:

- Showers 3 star (>7.5 but <=9L/min)
- Toilets 4 star
- Bathroom and kitchen taps 6 star

All apartments will be provided with water authority sub-metering to facilitate effective energy monitoring. Subject to implementation of smart metering systems, this supports the ability to affect behavioural change in the way that the occupants utilise water fixtures and fittings.

Non Residential Portion

Water fixtures and fittings will be specified to high Water Efficiency Labelling Scheme (WELS) rating. The minimum WELS ratings of the fittings and fixtures are:

- Showers 3 star (>7.5 but <=9L/min)
- Toilets 4 star
- Bathroom and kitchen taps 6 star

Water sub-metering will be provided for each tenancy, and also for major water uses, such as irrigation.

A rainwater harvesting system will also be installed to feed into the recycled water treatment plant.

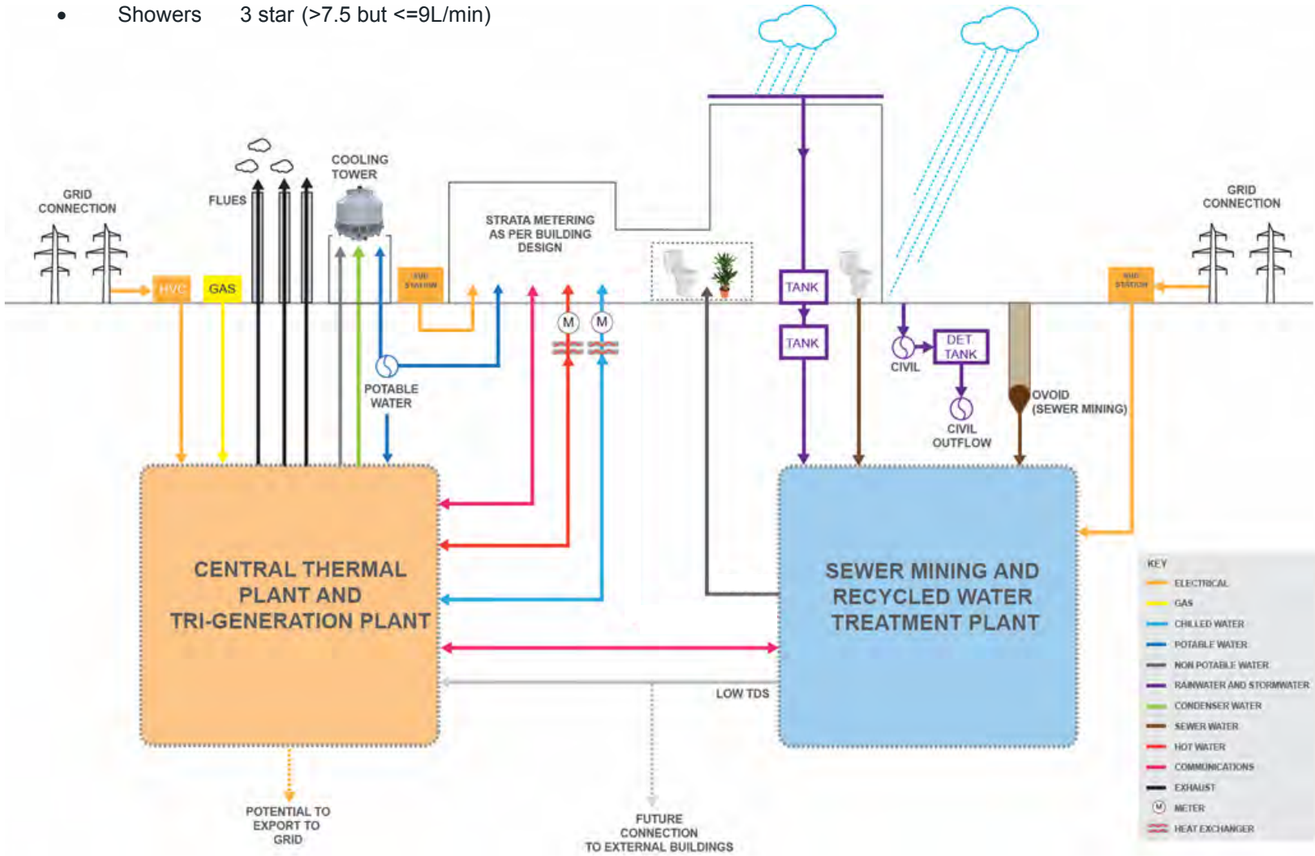

Figure 2: CTP and RWTP Connections

2. ESD Initiatives—Materials, Comfort, Health and Transport

Materials

Where possible, building materials, fittings and finishes will incorporate recycled materials or will be independently certified against a third party environmental certification scheme.

- Concrete, Steel and PVC—by sourcing these materials responsibly the impact on the environment arising form extraction and manufacture of these materials is reduced;
- Sustainable timber—by sourcing timber from sustainable forests, the impact on the environment from deforestation is reduced; and
- Flooring and joinery—selection of materials for flooring and joinery will take into consideration the recycled content of the product, product stewardship by the manufacturer, expected lifespan of the product, and the disassembly of the product to enable ease of reuse. All of these initiatives aim to reduce materials consumption.

Recycling will be convenient for the residents and as recycling bins will be provided for each residential floor. A bulk storage space for large household items will also be provided in the basement.

Figure 3: Careful material selection will be undertaken for Block 4N

Comfort

Thermal Comfort

Thermal modelling of the building (NatHERS) has assisted with selecting glazing materials and insulation of walls and roofs to maximise the thermal performance of the building envelope. This will enhance thermal comfort for the occupants.

Careful design of external shading, such as louvres, will provide additional shading to the facades. For further details, please refer to the façade section of the architectural summary report.

In addition, careful design of the mechanical systems will maximise thermal comfort in all occupied spaces.

Acoustic Comfort

The acoustic design will aim to achieve a high level of acoustic amenity between adjacent rooms and improve the acoustic comfort of the occupants by minimising noise from external sources and internal building services equipment.

Sound insulation will be appropriately applied between occupied areas based on the use of the spaces.

Health

Paints and floor covering will have low levels of volatile organic compounds. Low formaldehyde engineered wood products will be used.

In order to provide adequate lighting levels, electric lighting will be provided to achieve a minimum of 300 lux on kitchen sinks, cooktops and vanity basins.

Transport

Provision of bicycle parking spaces has been shown encourage the use of bicycles as an alternative form of transport. At least one bicycle cage will be provided per apartment, and bicycle racks and end-of trip facilities will also be provided for the office tenants and hotel staff.

In addition, bicycle use among the residential visitors can be significantly encouraged by providing bicycles for their use. Bicycle racks for visitors will be provided at an easily accessible location, as shown on Ground Plane architectural drawings.

The building is located just over 300m from Central Station, putting it in excellent proximity to trains servicing the entire Sydney region as well as Country Link trains interstate.

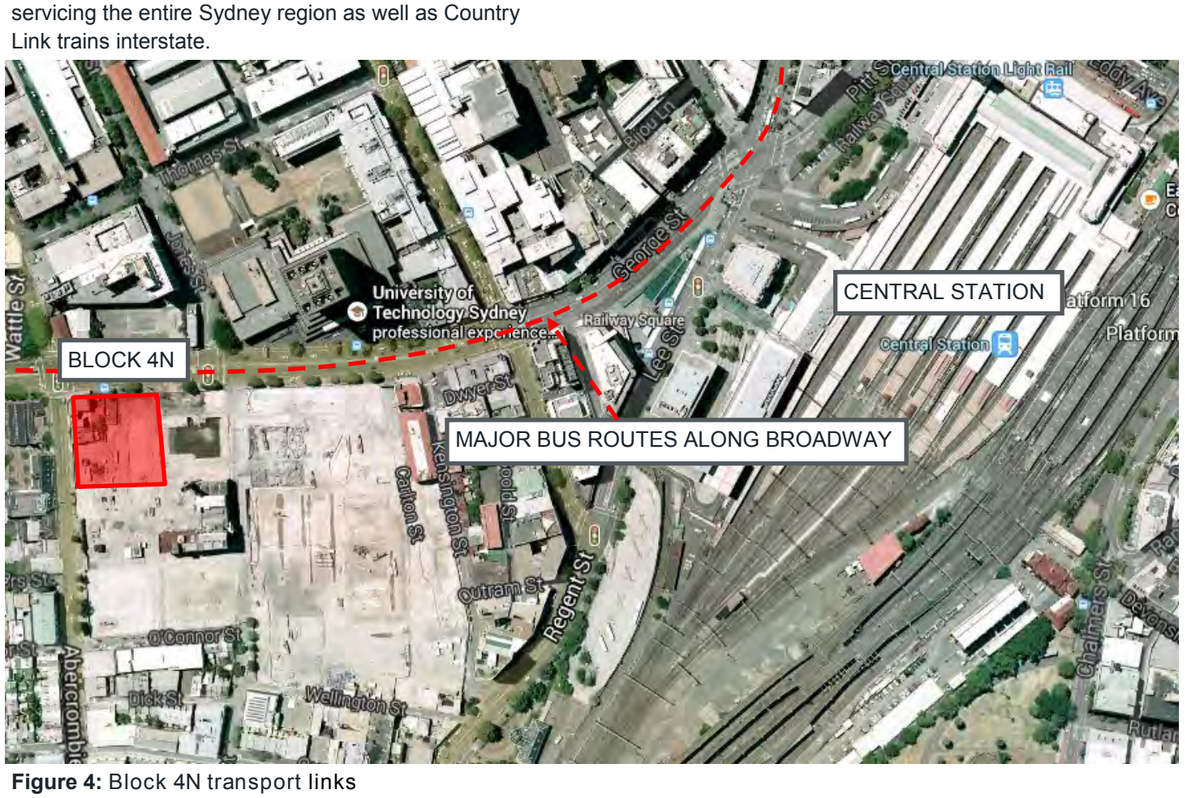

Figure 4: Block 4N transport links

Its position on Broadway also places the building on a major bus route, serviced by several bus services to the city and Sydney's east and west. Further bus services to Sydney's east, north and south are available at Central Station.

Car-sharing results in reduction of cars on the road. Car-share spaces will be provided in the Central Park Precinct. Also refer to GTA's and PTW's reports for further information on transport and basement.

3. ESD Initiatives—Green Star Strategy

In order to demonstrate the sustainability aspirations of the project, a 5 star Green Star pathway has been established to support the application of ESD initiatives across a full range of environmental categories. There are no pre-existing Green Star tool applicable for Block 4N. An equivalency pathway has been developed that combines the Multi Unit Residential v1, Office v3 and Public Buildings v1 Tools. Table 1 demonstrates the 5 star Green Star pathway to be followed.

The minimum number of points required to achieve 5 star Green Star is 60 points. A minimum of 64 points will be targeted to allow a safety margin, in case points are dropped during the future project stages. The buffer with the current Green Star strategy is 4 points.

Table 1: Green Star Pathway

Central Park Block 4N Green Star Bespoke Tool - 5 Star Pathway								
Category		Title	Credit No.	Points Available	Avg Points Available	Points Targeted	Avg Points Targeted	Weighted Points Targeted
Management **TOOL**	**FUNTIONAL SPACE**							
PBT/MURT/OFFICE	ALL	Green Star Accredited Professional	Man - 1	2	2	2	2	1
PBT/MURT/OFFICE	ALL	Commissioning Clauses	Man - 2	2	2	2	2	1
PBT/MURT/OFFICE	ALL	Building Tuning	Man - 3	1	1	1	1	1
PBT/MURT/OFFICE	ALL	Independent Commissioning Agent	Man - 4	1	1	0	0	0
PBT/MURT/OFFICE	ALL	Building Users' Guide	Man - 5	1	1	0	0	0
PBT/MURT/OFFICE	ALL	Environmental Management	Man - 6	3	3	3	3	2
PBT/MURT/OFFICE	ALL	Waste Management	Man - 7	2	2	2	2	1
PBT	HOTEL/OFFICE	Metering	Man - 16	6	6	6	6	3
MURT	RESI	Metering	Man - 16	6		6		
Management			SUB-TOTAL	24	18	22	16	9
Indoor Environment Quality **TOOL**	**FUNTIONAL SPACE**							
PBT/OFFICE	HOTEL/OFFICE	Ventilation Rates	IEQ - 1	3	3	0	0	0
PBT	ALL	Indoor Pollutant Monitoring and Control	IEQ - 3	1	1	0	0	0
OFFICE	OFFICE	Daylight	IEQ - 4	2	2	1	1	0
MURT	RESI/HOTEL	Daylight	IEQ - 4	2		0		
PBT/OFFICE	HOTEL/OFFICE	Thermal Comfort	IEQ - 5 / IEQ - 9	2	2	1	1	1
MURT	RESI	Thermal Comfort	IEQ - 5	2		1		
PBT/MURT/OFFICE	ALL	Hazardous Materials	IEQ - 6 / IEQ - 11	1		1		1
OFFICE	OFFICE	High Frequency Ballasts	IEQ - 6	1	1	1	1	1
PBT/OFFICE	HOTEL/OFFICE	Internal Noise Levels	IEQ - 7 / IEQ - 12	2	2	2	2	2
MURT	RESI	Internal Noise Levels	IEQ - 7	2		1		
PBT	HOTEL	Volatile Organic Compounds	IEQ - 8	4		4		
MURT	RESI	Volatile Organic Compounds	IEQ - 8	4	4	4	4	3
OFFICE	OFFICE	Volatile Organic Compounds	IEQ - 13	3		3		
PBT/MURT/OFFICE	ALL	Formaldehyde Minimisation	IEQ - 9 / IEQ - 14	1	1	1	1	1
PBT/OFFICE	HOTEL/OFFICE	Daylight Glare Control	IEQ - 11 / IEQ - 5	1	1	1	1	1
PBT	HOTEL	Electric Lighting Levels	IEQ - 13	1		1		
MURT	RESI	Electric Lighting Levels	IEQ - 13	1	1	0	1	1
OFFICE	OFFICE	Electric Lighting Levels	IEQ - 7	1		1		
OFFICE	OFFICE	Tenant Exhaust Riser	IEQ - 16	1	1	0	0	0
MURT	RESI	Private External Spaces	IEQ - 20	1	1	1	1	1
MURT	RESI	Dwelling Ventilation	IEQ - 21	3	3	1	1	1
MURT	RESI	Natural Ventilation	IEQ - 22	3	3	1	1	1
Indoor Environment			SUB-TOTAL	42	26	26	13	12

3. ESD Initiatives—Green Star Strategy

Central Park Block 4N								
Green Star Bespoke Tool - 5 Star Pathway								
Category		Title	Credit No.	Points Available	Avg Points Available	Points Targeted	Avg Points Targeted	Weighted Points Targeted
Energy								
TOOL	**FUNTIONAL SPACE**							
PBT/MURT/OFFICE	ALL	Conditional Requirement	Ene - Con					
PBT	HOTEL	Greenhouse Gas Emissions	Ene - 1	20		8		
MURT	RESI	Greenhouse Gas Emissions	Ene - 1	20	20	5	7	6
OFFICE	OFFICE	Greenhouse Gas Emissions	Ene - 1	20		8		
OFFICE	OFFICE	Lighting Zoning	Ene - 4	2	2	2	2	2
MURT	RESI	Unoccupied Areas	Ene - 7	2	2	2	2	2
MURT	RESI	Energy Efficient Appliances	Ene - 11	2	2	2	2	2
PBT/MURT/OFFICE	ALL	Peak Electricity Demand Reduction	Ene - 12	2	2	2	2	2
Energy			SUB-TOTAL	68	28	29	15	13
Transport								
TOOL	**FUNTIONAL SPACE**							
PBT/MURT/OFFICE	ALL	Provision of Car Parking	Tra - 1	2	2	0	0	0
PBT/MURT/OFFICE	ALL	Fuel-Efficient Transport	Tra - 2	2	2	2	2	1
PBT/MURT/OFFICE	ALL	Cyclist Facilities	Tra - 3	3	3	2	2	1
PBT/MURT/OFFICE	ALL	Commuting Mass Transport	Tra - 4	5	5	5	5	3
MURT	RESI	Trip Reduction-Mixed Use	Tra - 5	2	2	2	2	1
PBT	HOTEL	Transport Design and Planning	Tra - 6	2	2	1	1	1
Transport			SUB-TOTAL	16	16	12	12	7
Water								
TOOL	**FUNTIONAL SPACE**							
PBT	HOTEL	Occupant Amenity Water	Wat - 1	5		5		
MURT	RESI	Occupant Amenity Water	Wat - 1	5	5	5	5	5
OFFICE	OFFICE	Occupant Amenity Water	Wat - 1	5		5		
MURT/OFFICE	ALL	Landscape Irrigation	Wat - 3	1	1			0
PBT/MURT/OFFICE	ALL	Heat Rejection Water	Wat - 4	2	2	2	2	2
PBT	ALL	Fire System Water	Wat - 5	1	1	1	1	1
MURT	RESI	Water Efficient Appliances	Wat - 7	1	1	1	1	1
PBT/MURT	HOTEL/RESI	Swimming Pool/Spa Water Efficiency	Wat - 8	2	2	0	0	0
Water			SUB-TOTAL	22	12	19		9

3. ESD Initiatives—Green Star Strategy

Table 1: **Green Star Pathway**

Central Park Block 4N Green Star Bespoke Tool - 5 Star Pathway								
Category		Title	Credit No.	Points Available	Avg Points Available	Points Targeted	Avg Points Targeted	Weighted Points Targeted
Materials **TOOL**	**FUNTIONAL SPACE**							
PBT	HOTEL	Recycling Waste Storage	Mat - 1	2		2		
MURT	RESI	Recycling Waste Storage	Mat - 1	2	2	2	2	1
OFFICE	OFFICE	Recycling Waste Storage	Mat - 1	2		2		
PBT/MURT/OFFICE	ALL	Building Re-use	Mat - 2	6	6	6	6	3
PBT/MURT/OFFICE	ALL	Recycled Content & Re-used Products and Materials	Mat - 3	2	2	0	0	0
PBT/MURT/OFFICE	ALL	Concrete	Mat - 4	3	3	1	1	0
PBT/MURT/OFFICE	ALL	Steel	Mat - 5	2	2	1	1	0
PBT/MURT/OFFICE	ALL	PVC	Mat - 6	2	2	1	1	0
PBT/MURT/OFFICE	ALL	Timber	Mat - 7	1	1	1	1	0
PBT/MURT/OFFICE	ALL	Design for Disassembly	Mat - 8	1	1	0	0	0
PBT/MURT/OFFICE	ALL	Dematerialisation	Mat - 9	2	2	0	0	0
PBT/MURT	HOTEL/RESI	Flooring	Mat - 11	3	3	3	3	1
PBT	HOTEL	Assemblies	Mat - 12	3	3	0	0	0
PBT	HOTEL	Furniture	Mat - 14	4	4	0	0	0
Materials			SUB-TOTAL	35	31	19	15	6
Land Use & Ecology **TOOL**	**FUNTIONAL SPACE**							
PBT/MURT/OFFICE	ALL	Conditional Requirement	Eco - Con			Yes		
PBT/MURT/OFFICE	ALL	Topsoil	Eco - 1	na		0		0
PBT/MURT/OFFICE	ALL	Re-use of Land	Eco - 2	1	1	1	1	1
PBT/MURT/OFFICE	ALL	Reclaimed Contaminated Land	Eco - 3	2	2	2	2	1
PBT/MURT/OFFICE	ALL	Change of Ecological Value	Eco - 4	4	4	1	1	1
MURT	RESI	Outdoor Communal Facilities	Eco - 5	3	3	1	1	1
Land Use & Ecology			SUB-TOTAL	10	10	5	5	3
Emissions **TOOL**	**FUNTIONAL SPACE**							
PBT/MURT/OFFICE	ALL	Refrigerant ODP	Emi - 1	1	1	1	1	0
PBT/MURT/OFFICE	ALL	Refrigerant GWP	Emi - 2	2	2	0	0	0
PBT/MURT/OFFICE	ALL	Refrigerant Leaks	Emi - 3	1	1	0	0	0
PBT/MURT/OFFICE	ALL	Insulant ODP	Emi - 4	1	1	1	1	0
PBT/MURT/OFFICE	ALL	Stormwater	Emi - 5	3	3	3	3	1
PBT/MURT/OFFICE	ALL	Discharge to Sewer	Emi - 6	5	5	5	5	2
PBT/MURT/OFFICE	ALL	Light Pollution	Emi - 7	1	1	1	1	0
PBT/MURT/OFFICE	ALL	Legionella	Emi - 8	1	1	0	0	0
Emissions			SUB-TOTAL	15	15	11	11	4
TOTAL CATEGORY WEIGHTING SCORE				242		143		64

4.1 BASIX Certification Strategy and Inputs | Overview and Water

BASIX Overview

Section J of Volume One of the NCC requires that Class 2 buildings are subject to BASIX.

BASIX is an online tool that is used to rate the energy and water efficiency, and thermal comfort performance of residential dwellings in NSW. The tool sets minimum energy and water reduction targets, which must be met through the design of the building and the selection of energy and water efficient fixtures, fittings and appliances. The BASIX tool also calculates the maximum heating and cooling load benchmarks for the building. Commitments made under BASIX become a condition of the relevant development consent or complying development certificate.

BASIX applies automatically to all new Class 1 and 2 buildings. Under Part A3.2 of Volume One of the NCC, the residential portion of Block 4N can be categorised as a Class 2 building; a building containing 2 or more sole-occupancy units each being a separate dwelling.

Block 4N

The BASIX benchmarks that apply to this development are:

- Energy—40% reduction below current practice
- Water—40% reduction below current practice
- Thermal comfort—Pass demonstrated via NatHERS modelling for all buildings

BASIX is only applicable to the permanent residential part and not the guest rooms of the hotels.

Common Areas

Common areas for the development have been pro-rated according to GFA of the residential apartments and the non-residential areas.

Water Strategy for BASIX Certificate

Efficient Fixtures and Fittings

In order to maximise the water efficiency of the development, all fixtures in the proposed development are to meet the WELS (Water Efficiency Labelling Scheme) ratings detailed in Table 2.

Table 2: Proposed WELS ratings for fixtures for BASIX Certificate

Fixture	Proposed WELS Ratings
Toilets	4 Star
Bathroom and Kitchen Taps	6 Star
Showers	3 Star (>7.5 but <=9L/min)
Dishwashers	3.5 Star
Clothes washers	4.5 Star
Common area taps	6 Star
Common area toilets	4 Star

Landscaping

Further potable water use reductions will be achieved through a water sensitive landscape and irrigation design.

As the exact plant selection is yet to be finalised, it has been assumed that for BASIX assessment all plants are exotic, which forms the most conservative approach.

4.2 BASIX Certificates Strategy and Inputs | Thermal Comfort

Thermal Comfort

NatHERS Modelling

Compliance with the thermal comfort requirements of BASIX is demonstrated via NatHERS thermal comfort modelling.

NatHERS modelling is conducted using approved software, such as BERS Pro 4.2. Each representative type of apartment is modelled to obtain heating and cooling loads, which are then entered into BASIX. In order to meet the heating and cooling load limits set by BASIX, the initiatives in Table 3 will be employed.

BERS Pro, produced by Solar Logic, has been used by WSP Built Ecology to carry out the NatHERS modelling. It has been developed as a residential thermal comfort rating tool and is accredited under the NatHERS Software Accreditation Protocol. Dwellings can achieve up to ten stars in relation to their thermal comfort performance.

User inputs, such as area uses, orientation, climate zone, building materials and air conditioning requirements are used to calculate heating and cooling loads for each apartment.

The models have accounted for the following:

- The overhang of any balconies above each apartment, built in as eaves
- Any shading from overshadowing buildings
- Any balcony walls between dwellings, built in as shading screens and wing walls

Limitations

The results from the BERS Pro modelling shown within this report are limited in accuracy by the following factors:

- Actual energy consumption will also be dependent on the climate, occupants and their behaviour, which the software does not take into account
- Orientation and apartment layout being as shown on the drawings
- Construction parameters being as stated in Table 3 (next page)

4.2 BASIX Certification Strategy and Inputs | Thermal Comfort

Thermal Comfort

Table 3: Modelling parameters for the NatHERS modelling

Building element	Description
Floor to ceiling height	2.7m
External walls	Precast concrete panels - 160mm minimum thickness; provide R1.1 m^2.K/W insulation in all external walls to provide R_{total} 1.5 m^2.K/W (for further details refer to façade sections provided by the façade engineer in their SSDA report)
Party walls	Cavity panel; insulation in all party walls to meet acoustic requirements (R0.7 m^2.K/W insulation used in NatHERS model to provide R_{total} 1.0 m^2.K/W)
Walls to lifts, stair wells, toilets, plant areas, etc.	Tilt Concrete – lined - 200mm thickness; R0.7 m^2.K/W insulation in all walls to provide R_{total} 1.1 m^2.K/W
Internal wall between living/bedroom spaces	Cavity Panel; no insulation included in the model (insulation in internal spaces would not alter the thermal performance of the apartments); insulation to be specified based on acoustic requirements.
Internal wall between living/bedroom spaces to bathroom/ensuite space	Cavity Panel; no insulation included in the model (insulation in internal spaces would not alter the thermal performance of the apartments); insulation to be specified based on acoustic requirements.
Common area corridors	No minimum insulation levels on the external walls to common area corridors are required.
Walls to common corridors	Cavity panel; insulation in all party walls to meet acoustic requirements (R0.7 m^2.K/W insulation used in NatHERS model to provide R_{total} 1.0 m^2.K/W—tbc by acoustic consultant during Detailed Design)
Skylights	No skylights at the apartments.
Vented downlights	Vented downlights, wherever specified in apartments with ceiling to the exposed roof, will not compromise the levels of insulation on the roof (i.e. there will not be any penetrations to the insulation due to the downlights)
Doors	• External: Solid core • Internal: Hollow core
Window coverings	• Holland blinds*
Insect screens	• Yes*
Ceiling fans	• None

Building element	Description
Floors	Floor coverings—tiles for kitchens, living room areas, bathrooms and corridors; carpet for bedrooms and living areas were included in the NatHERS model. Actual floor covering will be developed during Detailed Design.
Ceilings	• Internal ceilings between apartments: Concrete with plasterboard, no insulation. • For all apartments with a ceiling to the exposed roof: See “Roof” section below.
Roofs	Concrete slab, medium colour, no cavity, R1.4m^2.K/W insulation to achieve an R_{total} 1.5 m^2.K/W on all apartments with a ceiling to the exposed roof, apart from apartment L16-03 which requires R2.0m^2.K/W insulation to achieve an R_{total}2.1 m^2.K/W
Glazing type	Aluminium framed, double glazing. Provide the following whole of window parameters—U-value: 2.85 W/m^2K | Solar Heat Gain Coefficient (SHGC): 0.31 (NFRC Values) (mid – pane values: U-value 1.66 W/m^2 K and SHGC 0.35 with aluminium frames) for all clear glazing at the thermal envelope.
Opening type and shading	As shown on Fosters elevations and façade detail. Please refer to the façade section of the architectural SSDA Summary Report.

**Insect screens and holland blinds are required as default parameters by the NatHERS modelling protocol*

*** If reflective insulation is selected this can act to reduce the R-value performance (thickness) of the insulation*

4.2 BASIX Certification Strategy and Inputs | Thermal Comfort

Thermal Comfort

The thermal envelope of the apartments for a typical floor is indicated in Figure 5.

The NCC 2014 defines this as “parts of the building’s fabric that separate a conditioned space or habitable room from: -

a) the exterior of the building; or

b) a non-conditioned space including; the floor of a rooftop plant room, lift-machine room or the like; and the floor above a carpark or warehouse; and the common wall with a carpark, warehouse or the like.”

The thermal envelope of the apartments is required to meet the minimum performance targets as set in NatHERS.

For the residential common corridors there are no defined minimum performance requirements for the building elements to the exterior.

All corridors are open on to the void space which in turn is open to the outside (the top is not enclosed of the atrium is not enclosed)

Balconies are located outside the thermal envelope of the building.

Figure 5: Example of a building thermal envelope for a typical floor (Residential Levels 12—14)

4.2 BASIX Certification Strategy and Inputs | Thermal Comfort

NatHERS Modelling Results

Results

In summary, the current design of the dwellings have achieved the minimum requirements of the thermal comfort section of BASIX. Their area corrected heating and cooling loads have been identified in Table 4.

Table 4: NatHERS Thermal Comfort results

Dwelling Numbers	Conditioned Area (m^2)	Heating Load (MJ/m^2)	Cooling Load (MJ/m^2)	Star Rating
L11-01	53.4	30.5	10.5	5.5
L11-02	74.8	31.4	9.50	5.5
L11-03	58.5	38.0	6.00	5.0
L11-04	62.4	23.5	10.3	6.5
L11-05	62.4	24.5	10.1	6.5
L11-06	58.1	17.3	10.0	7.0
L11-07	74.8	20.5	9.70	6.5
L11-08	53.4	18.0	10.9	7.0
L12-01	53.4	31.2	10.8	5.5
L12-02	99.2	22.0	15.5	6.0
L12-03	58.5	39.3	6.30	5.0
L12-04	62.4	24.7	10.4	6.0
L12-05	62.4	24.9	9.80	6.5
L12-06	58.1	17.6	9.80	7.0
L12-07	99.2	7.40	16.6	7.5
L12-08	53.4	18.7	10.9	7.0
L13-01	53.4	31.2	10.8	5.5
L13-02	99.2	22.0	15.5	6.0
L13-03	58.5	39.3	6.30	5.0
L13-04	62.4	24.7	10.4	6.0
L13-05	62.4	24.9	9.80	6.5
L13-06	58.1	17.6	9.80	7.0
L13-07	99.2	7.40	16.6	7.5
L13-08	53.4	18.7	10.9	7.0
L14-01	53.4	31.2	10.8	5.5
L14-02	99.2	22.0	15.5	6.0
L14-03	58.5	39.3	6.30	5.0
L14-04	62.4	24.7	10.4	6.0
L14-05	62.4	24.9	9.80	6.5
L14-06	58.1	17.6	9.80	7.0
L14-07	99.2	7.40	16.6	7.5
L14-08	53.4	18.7	10.9	7.0
L15-01	53.4	31.2	10.8	5.5
L15-02	99.2	22.0	15.5	6.0
L15-03	58.5	39.3	6.30	5.0
L15-04	62.4	24.7	10.4	6.0
L15-05	62.4	24.9	9.80	6.5
L15-06	58.1	17.6	9.80	7.0
L15-07	99.2	7.40	16.6	7.5
L15-08	53.4	18.7	10.9	7.0
L16-01	53.4	39.7	11.7	4.5
L16-02	99.2	31.9	15.6	5.0
L16-03	58.5	47.4	7.50	4.5
L16-04	62.4	35.5	9.60	5.0
L16-04	62.4	35.3	9.60	5.0
L16-06	58.1	27.7	9.50	6.0
L16-07	99.2	13.1	17.1	6.5
L16-08	53.4	27.1	11.7	6.0

4.3 BASIX Certification Strategy and Inputs | Energy

Energy Strategy for BASIX Certificate

Common Areas and Dwellings

Energy consumption in multi-unit residential buildings is heavily influenced by the utilisation and servicing of the common areas. HVAC and artificial lighting systems in car parks, lobbies and common corridors need to be carefully designed to reduce energy demands. Also, the appliances, lighting and HVAC systems used in the dwellings needs to be carefully considered to reduce energy use.

For Block 4N, the energy initiatives currently proposed are summarised in Tables 5—7.

Table 5: Energy Initiatives for Block 4N

Energy Item	Strategy
Air-conditioning	No individual system; heating and cooling provided by the Central Thermal Plant (gas trigeneration engine)
Central DHW heating system	Provided by the Central Thermal Plant (gas trigeneration engine)
Lift motors	Gearless traction with VVVF motors
Appliances	All appliances to meet the following Energy Star ratings: • Cooktop—Electric for Studios at Dual Key apartments; Gas for all other apartments • Oven—Electric • Dishwashers—3 stars • Refrigerator—3.5stars • Clothes washers—3.5 star • Clothes dryer—2 stars *No ventilated fridge spaces, i.e. the refrigerator will be enclosed*
Heating and cooling	Heating and cooling provided by the Central Thermal Plant (gas trigeneration engine and absorption chillers)
Lighting (apartments)	Not dedicated fluorescent or LED lamps
Ventilation (apartments)	Bathroom and laundry ventilation— individual fan into central duct + VSD; Interlocked to light Kitchen ventilation— individual fan into central duct + VSD; manual

Table 6: Common area lighting strategy

Common area lighting			
	Type	Control	Linked to BMS?
Gym and facilities	Fluorescent	Manual on / off	Yes
Basement car parks	Fluorescent	Zoned switching	Yes
Storage cages, supply fan room, exhaust fan room, Comms, private substation, energy transfer system 4N, water feature plantroom, residential recycling room, basement hallways, residential waste room, electrical room, bike area/ car park basement, rooftop plant rooms, storage rooms.	Fluorescent	Manual switch	No
Ground floor lobby	LED	Manual switch	No
Lifts	LED	Connected to lift call button	No
Residential corridor	Compact fluorescent	Zoned switching and motion sensor	Yes
Lift lobbies	Compact fluorescent	Motion sensor	Yes
Stairs	Fluorescent	No control	No

Table 7: Common area ventilation strategy

Common Area Ventilation		
	Strategy	Control
Energy transfer system 4N, water feature plant-room, basement hallways, rooftop plant rooms	Ventilation (supply and exhaust)	Time clock or BMS controlled
Storage area/car park area in basement, bike area/car park basement	Ventilation (supply and exhaust)	Carbon monoxide monitor + VSD fan
Storage cages, supply fan rooms, exhaust fan rooms, resi hallways, resi lift lobbies, electrical room, storage room, stairs	No mechanical ventilation	N/A
Residential recycling room, residential waste rooms	Ventilation (supply and exhaust)	Continuous
Comms	Air conditioning system	Continuous
Private substation 4N	Ventilation (supply + exhaust)	Thermostatically controlled
Ground floor lobby, gym	Air conditioning system	Time clock or BMS controlled

5. Section J Analysis—Part J1 and J2 for Retail, Office, Childcare and Hotel Areas

Section J Analysis

All areas in the building which are mechanically conditioned and are not Class 1 or 2, have to meet compliance with Section J "Energy Efficiency" of Volume One of the NCC Series 2014.

The compliance assessment method applied was as follows:

- Part J1 requires the definition of the building fabric thermal performance requirements in line with the DTS provisions
- Part J2 requires the completion of the Australian Building Codes Board (ABCB) glazing calculator, which assesses façade areas, glazing areas and properties, shading, and orientation in each storey, including any mezzanine

The applicable building elements (building fabric and glazing) are all those which form part of the building envelope (i.e. all building elements that separate conditioned spaces from the exterior or non-conditioned spaces).

City Plan Services have advised the Class type of each space in the building (Building Code of Australia Assessment Report, 9 September 2014, relevant extract also found in Appendix F).

All the non-residential areas are required to meet the requirements of Part J1 Building Fabric and Part J2 Glazing of Section J. The site falls within Climate Zone 5.

- Part J1 requires the building fabric elements to meet the Deemed-To-Satisfy (DTS) provisions of Section J
- Part J2 requires compliance with the ABCB glazing calculator, which assesses façade areas, glazing areas and properties, shading, and orientation in each storey, including any mezzanine

The applicable elements (building fabric and glazing) are all those which form part of the building envelope (all building elements that separate conditioned spaces from non-conditioned spaces).

Part J1

Part J1 performance requirements for non-residential areas are summarised in Table 9.

Part J2

Part J2 performance requirements for the non-residential areas are summarised in Table 8.

Heritage building

The existing Australian Hotel and Abercrombie Street Terraces are heritage buildings and based on the heritage impact assessment prepared by Urbis and dated 13th October 2014, it is a requirement that the façades retained. The glazing required to meet Section J compliance will be assessed at Detailed Design stage.

Table 8: Summary of the glazing performance requirements

Building Element	Performance Requirements
Retail lower (East)	***U4.0 SHGC0.5***
Retail Upper (North, South and East)	***U4.0 SHGC0.5***
Retail (West)	***U3.0 SHGC0.17***
Childcare Level 3 and Level 4 (North, West, South) Childcare Level 4 (Northeast, Northwest and Southwest) Office (All facades—North, East, South West, Northeast, Northwest, Southeast and Southwest)	***U4.0 SHGC0.45***
Childcare Glazing to Terrace (West, North and South)	***U6.0 SHGC0.60***
Hotel Ground Floor—windows on all facades (North, East, South, West)	***U2.7 SHGC0.34***
Hotel Ground Floor—doors (South, East)	***U6.3 SHGC0.71***
Hotel Level 1 all facades (North, East, South, West)	***U4.0 SHGC0.6***
Hotel Level 2 and Hotel Level 4—18 (North, East and West)	***U3.0 SHGC0.17***
Hotel Level 2 (South)	***U3.0 SHGC0.3***
Hotel Level 3 all facades (North, East, South, West)	***U4.0 SHGC0.39***
Hotel Level 4-18(South)	***U3.0 SHGC0.4***

Table 9: Summary of building fabric performance requirements for the retail, childcare and office

Building Element	Part J1 DTS Performance Requirements
All insulation	≥ **R 0.2** m^2.K/W All insulation must form a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier.
Suspended floors	≥ **R 1.0** m^2.K/W Between conditioned and non-conditioned internal space (e.g. suspended floor retail and basement car park)
External walls	≥ **R 2.8** m^2.K/W (on north, east and west facing façade) ≥ **R 2.3** m^2.K/W (walls shaded with a projection shade angle of 30°—60°) ≥ **R 1.8** m^2.K/W (walls shaded with a projection shade angle of > 60°) *No walls are assumed to have a surface density of > 220kg/ m². No walls are assumed to only have space for insulation provided by a furring channel, top hat section or the like.*
Envelope walls other than external walls (e.g. between conditioned and non-conditioned internal spaces)	≥ **R 1.0** m^2.K/W for walls other than an external wall where air change rates are < 1.5 ≥ **R 1.8** m^2.K/W for all other cases
Roof	≥ **R 3.2** m^2.K/W for upper surface solar absorptance of ≤0.4 ≥ **R 3.7** m^2.K/W for upper surface solar absorptance of >0.4 and ≤0.6 ≥ **R 4.2** m^2.K/W for upper surface solar absorptance of >0.6

R-values stated in Table 9 relate to total R-values across a construction build-up

5. Section J Analysis—Part J1 and J2 for Retail, Office, Childcare and Hotel Areas

Envelope

Parts J1 and J2 of Section J apply to the building envelope. The NCC 2014 defines this as “parts of the building’s fabric that separate a conditioned space or habitable room from: -

a) the exterior of the building; or

b) a non-conditioned space including; the floor of a rooftop plant room, lift-machine room or the like; and the floor above a carpark or warehouse; and the common wall with a carpark, warehouse or the like.”

Figure 6 shows where conditioned space is currently provided for the non-residential areas.

Legend:

Conditioned space (the envelope of conditioned space must comply with Parts J1 and J2)

Existing Heritage building—subject to detailed Section J analysis during Detailed Design

Figure 6: Building elements on Ground Floor assessed for the Section J, Part J1 DTS provisions review

Appendix A | BASIX Certificates

BASIX® Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 574969M_02

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 18/09/2014 published by Planning & Infrastructure. This document is available at www.basix.nsw.gov.au

Director-General
Date of issue: Saturday, 25 October 2014
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT Planning & Infrastructure

Project summary	
Project name	Central Park Block 4N_02
Street address	Central Park Avenue Chippendale 2008
Local Government Area	Sydney City Council
Plan type and plan number	deposited 1142053
Lot no.	2
Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	48
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 60	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 42	Target 20

Certificate Prepared by
Name / Company Name: WSP
ABN (if applicable): 47 005 113 468

Description of project

Project address	
Project name	Central Park Block 4N_02
Street address	Central Park Avenue Chippendale 2008
Local Government Area	Sydney City Council
Plan type and plan number	deposited 1142053
Lot no.	2
Section no.	-

Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	48
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details	
Site area (m²)	4111
Roof area (m²)	2112
Non-residential floor area (m²)	23109.3
Residential car spaces	32
Non-residential car spaces	98

Common area landscape	
Common area lawn (m²)	0
Common area garden (m²)	179.15
Area of indigenous or low water use species (m²)	14.88

Assessor details	
Assessor number	100002
Certificate number	1006955205
Climate zone	17

Project score		
Water	✔ 60	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 42	Target 20

Description of project

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

Residential flat buildings - Building1, 48 dwellings, 16 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
L1101	1	53.0	0.0	3.27	0.0
L1105	1	62.0	0.0	3.37	0.0
L1201	1	53.0	0.0	0.0	0.0
L1205	1	62.0	0.0	0.0	0.0
L1301	1	53.0	0.0	0.0	0.0
L1305	1	62.0	0.0	0.0	0.0
L1401	1	53.0	0.0	0.0	0.0
L1405	1	62.0	0.0	0.0	0.0
L1501	1	53.0	0.0	0.0	0.0
L1505	1	62.0	0.0	0.0	0.0
L1601	1	53.0	0.0	0.0	0.0
L1605	1	62.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
L1102	2	74.0	0.0	10.18	0.0
L1106	1	58.0	0.0	3.43	0.0
L1202	2	99.0	0.0	0.0	0.0
L1206	1	58.0	0.0	0.0	0.0
L1302	2	99.0	0.0	0.0	0.0
L1306	1	58.0	0.0	0.0	0.0
L1402	2	99.0	0.0	0.0	0.0
L1406	1	58.0	0.0	0.0	0.0
L1502	2	99.0	0.0	0.0	0.0
L1506	1	58.0	0.0	0.0	0.0
L1602	2	99.0	0.0	0.0	0.0
L1606	1	58.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
L1103	1	58.0	0.0	3.57	0.0
L1107	2	74.0	0.0	10.18	0.0
L1203	1	58.0	0.0	0.0	0.0
L1207	2	99.0	0.0	0.0	0.0
L1303	1	58.0	0.0	0.0	0.0
L1307	2	99.0	0.0	0.0	0.0
L1403	1	58.0	0.0	0.0	0.0
L1407	2	99.0	0.0	0.0	0.0
L1503	1	58.0	0.0	0.0	0.0
L1507	2	99.0	0.0	0.0	0.0
L1603	1	58.0	0.0	0.0	0.0
L1607	2	99.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
L1104	1	62.0	0.0	3.50	0.0
L1108	1	53.0	0.0	3.27	0.0
L1204	1	62.0	0.0	0.0	0.0
L1208	1	53.0	0.0	0.0	0.0
L1304	1	62.0	0.0	0.0	0.0
L1308	1	53.0	0.0	0.0	0.0
L1404	1	62.0	0.0	0.0	0.0
L1408	1	53.0	0.0	0.0	0.0
L1504	1	62.0	0.0	0.0	0.0
L1508	1	53.0	0.0	0.0	0.0
L1604	1	62.0	0.0	0.0	0.0
L1608	1	53.0	0.0	0.0	0.0

Description of project

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

Common areas of unit building - Building1

Common area	Floor area (m²)
Gym (No. 1)	104.08
Lift car (No. 1)	-
Electrical room	58.12
Supply fan room	326.8
Private substation 4N	6.11
Storage cages	44.27
Ground floor lobby	2.97
Resi lift lobbies	119.16

Common area	Floor area (m²)
Common area / Car park area in basement	5587.70
Lift car (No. 2)	-
Residential Recycling Room	17.59
Exhaust fan room	290.33
Energy transfer system 4N	13.44
Storage rooms	1.94
Basement hallways	419.37

Common area	Floor area (m²)
Bike area / car park basement	251.4
Comm(s)	39.03
Residential Waste Rooms	125.34
Rooftop plant rooms	228.91
Water feature plantroom	7.55
Stairs	106.67
Resi hallways	650.41

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building1
    - (a) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Comfort
    - (b) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

2. Commitments for multi-dwelling houses

3. Commitments for single dwelling houses

4. Commitments for common areas and central systems/facilities for the development (non-building specific)
    - (i) Water
    - (ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. 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 - Building1

(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.	✔	✔	✔

	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	3 star (> 7.5 but <= 9 L/min)	4 star	6 star	6 star	no	4 star	3 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	on-site recycled water system (no. 1)	See central systems	See central systems	yes	yes	yes	-	-
None	-	-	-	-	-	-	-	-

(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.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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".		✔	

	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 1	individual fan into central duct + VSD	interlocked to light	individual fan into central duct + VSD	manual switch on/off	individual fan into central duct + VSD	interlocked to light

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
L1102, L1107, L1202, L1207, L1302, L1307, L1402, L1502, L1507, L1602, L1607	central cooling system 1	central cooling system 1	central heating system 1	central heating system 1	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
L1101, L1103, L1104, L1105, L1106, L1108, L1201, L1203, L1204, L1205, L1206, L1208, L1301, L1303, L1304, L1305, L1306, L1308, L1401, L1403, L1404, L1405, L1406, L1407, L1408, L1501, L1503, L1504, L1505, L1506, L1508, L1601, L1603, L1604, L1605, L1606, L1608	central cooling system 1	central cooling system 1	central heating system 1	central heating system 1	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	3.5 star (new rating)	no	3 star	3.5 star	2 star	no	no

(iii) Thermal Comfort	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.	✔	✔	✔

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
L1101	30.5	10.5
L1102	31.40	9.50
L1103	38.0	6.0
L1104	23.50	10.30
L1105	24.50	10.10
L1106	17.30	10.10
L1107	20.50	9.70
L1108	18.0	10.9
L1601	39.7	11.70
L1602	31.90	31.90
L1603	47.40	7.50
L1604	35.30	9.60
L1605	35.50	9.60
L1606	27.70	9.50
L1607	13.10	17.10
L1608	27.10	11.70
L1201, L1301, L1401, L1501	31.20	10.80
L1202, L1302, L1402, L1502	22.0	15.50
L1203, L1303, L1403, L1503	39.30	6.30
L1204, L1304, L1404, L1504	24.70	10.40
L1205, L1305, L1405, L1505	24.90	9.80
L1206, L1306, L1406, L1506	17.60	9.80
L1207, L1307, L1407, L1507	7.40	16.6
All other dwellings	18.70	10.90

(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	3 star (> 7.5 but <= 9 L/min)	4 star	6 star	4 star

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	400000	To collect run-off from at least: - 1146 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 179.15 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site - use of this water as make-up water by Central cooling system 1, in the building/development
Fire sprinkler system (No. 1)	-	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
Gym (No. 1)	air conditioning system	time clock or BMS controlled	fluorescent	manual on / manual off	Yes
Common area / Car park area in basement	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching	No
Bike area / car park basement	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	No
Lift car (No. 1)		-	light-emitting diode	connected to lift call button	No
Lift car (No. 2)		-	light-emitting diode	connected to lift call button	No
Comm(s)	air conditioning system	none ie. continuous	fluorescent	manual on / manual off	No
Electrical room	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Residential Recycling Room	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Residential Waste Rooms	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Supply fan room	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Exhaust fan room	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Rooftop plant rooms	ventilation (supply + exhaust)	thermostatically controlled	fluorescent	manual on / manual off	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**
Private substation 4N	ventilation (supply + exhaust)	thermostatically controlled	fluorescent	manual on / manual off	No
Energy transfer system 4N	ventilation (supply + exhaust)	thermostatically controlled	fluorescent	manual on / manual off	No
Water feature plantroom	ventilation (supply + exhaust)	thermostatically controlled	fluorescent	manual on / manual off	No
Storage cages	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Storage rooms	no mechanical ventilation	-	fluorescent	manual on / timer off	No
Stairs	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Ground floor lobby	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	Yes
Basement hallways	ventilation (supply + exhaust)	time clock or BMS controlled	fluorescent	manual on / manual off	No
Resi hallways	no mechanical ventilation	-	compact fluorescent	zoned switching with motion sensor	Yes
Resi lift lobbies	no mechanical ventilation	-	compact fluorescent	motion sensors	Yes

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 22
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 22

4. 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	3 star (> 7.5 but <= 9 L/min)	4 star	6 star	4 star

Central systems	Size	Configuration	Connection (to allow for...)
Central on-site recycled/alternative water supply (No. 1)	To supply at least 2308 litres of recycled water per day to the development (over and above the system's committed capacity, if any)	-	- Irrigation of 0 square metres of common landscape area on the site - car washing in 0 car washing bays on the site - use of this water as make-up water by Central cooling system 1, in the building/development

(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
Central hot water system (No. 1)	cogeneration system	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)
Central cooling system (No. 1)	chilled water fan coil units	Energy source: electric driven compressor Heat rejection method: cooling tower Unit efficiency (min): high - COP > 4.5
Alternative energy supply	Cogeneration system	Fuel type: gas Electrical output (min): 1100kW Efficiency of fuel to electricity conversion (min): 42.5%
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).

Appendix B | ABSA Certificates

www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 6.1/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006955205
CERTIFICATION NUMBER

FRASERS PROPERTY
ISSUED TO

17/10/2014
DATE

Rebecca Chua
ASSESSOR NAME

2 CENTRAL PARK AVENUE
ADDRESS

17
CLIMATE ZONE

100002
ASSESSOR NUMBER

Site Lot LOT 2

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

WSP
COMPANY

CHIPPENDALE

NSW

25.1 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

2008

11.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

36.1 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION


ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

This house energy rating has been based on information provided at the time of rating. Modifications made to the design or onsite substitution of materials may effect the rating. |

www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 5.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963290
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L11-01 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

30.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

41.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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Association of Building Sustainability Assessors

NatHERS Rated 5.5/10 STARS*

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L11-02 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963415
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

31.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

40.9 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

74.8 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

74.8 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L11-03 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963605
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

38.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

6.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

44.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.5 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.5 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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This house energy rating has been based on information provided at the time of rating. Modifications made to the design or onsite substitution of materials may effect the rating. |

ABSA-Version 1.1

www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 6.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963498
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L11-04 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

23.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

33.8 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

This house energy rating has been based on information provided at the time of rating. Modifications made to the design or onsite substitution of materials may effect the rating. |

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L11-05 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963480
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

24.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.1 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

34.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

This house energy rating has been based on information provided at the time of rating. Modifications made to the design or onsite substitution of materials may effect the rating. |

ABSA-Version 1.1

www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L11-06 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963423
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

17.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

27.3 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.1 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.1 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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Association of Building Sustainability Assessors

NatHERS Rated 6.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L11-07 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963407
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

20.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

30.2 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

74.8 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

74.8 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L11-08 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963282
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

18.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

28.9 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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ABSA
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NatHERS Rated 5.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963340
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L12-01 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

31.2 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

42.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 6.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L12-02 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963704
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

22.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

15.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

37.5 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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NatHERS Rated 5.0/10 STARS*

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L12-03 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963613
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

39.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

6.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

45.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.5 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.5 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 6.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963548
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L12-04 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

24.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

35.1 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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NatHERS Rated 6.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963506
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L12-05 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

24.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

34.7 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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NatHERS Rated 7.0/10 STARS*

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L12-06 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963431
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

17.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

27.4 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.1 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.1 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963662
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L12-07 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

7.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

16.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

24.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963308
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L12-08 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

18.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

29.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 5.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L13-01 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963357
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

31.2 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

42.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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NatHERS Rated 6.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L13-02 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963712
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

22.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

15.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

37.5 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 5.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L13-03 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963621
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

39.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

6.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

45.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.5 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.5 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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NatHERS Rated 6.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963555
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L13-04 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

24.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

35.1 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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NatHERS Rated 6.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L13-05 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963514
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

24.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

34.7 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963449
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L13-06 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

17.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

27.4 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.1 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.1 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963670
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L13-07 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

7.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

16.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

24.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

This house energy rating has been based on information provided at the time of rating. Modifications made to the design or onsite substitution of materials may effect the rating. |

www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L13-08 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963316
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

18.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

29.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 5.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L14-01 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963365
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

31.2 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

42.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 6.0/10 STARS*

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L14-02 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963720
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

22.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

15.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

37.5 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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Association of Building Sustainability Assessors

NatHERS Rated 5.0/10 STARS*

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L14-03 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963639
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

39.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

6.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

45.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.5 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.5 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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Association of Building Sustainability Assessors

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*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963563
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L14-04 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

24.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

35.1 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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ABSA
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NatHERS Rated 6.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L14-05 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963522
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

24.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

34.7 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L14-06 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963456
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

17.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

27.4 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.1 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.1 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L14-07 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963688
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

7.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

16.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

24.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L14-08 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963324
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

18.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

29.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L15-01 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963373
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

31.2 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

42.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L15-02 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963738
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

22.0 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

15.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

37.5 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L15-03 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963647
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

39.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

6.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

45.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.5 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.5 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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NatHERS Rated 6.0/10 STARS*

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963571
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L15-04 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

24.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

35.1 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 6.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L15-05 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963530
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

24.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

34.7 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963464
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

17.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.8 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

27.4 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.1 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.1 m^2
FLOOR AREA - TOTAL

FRASERS PROPERTY
ISSUED TO

Unit L15-06 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963696
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L15-07 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

7.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

16.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

24.0 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

This house energy rating has been based on information provided at the time of rating. Modifications made to the design or onsite substitution of materials may effect the rating. |

www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 7.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963332
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L15-08 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

18.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

10.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

29.6 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 4.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L16-01 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963399
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

39.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

11.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

51.4 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

This house energy rating has been based on information provided at the time of rating. Modifications made to the design or onsite substitution of materials may effect the rating. |

www.absa.net.au

ABSA
Association of Building Sustainability Assessors

NatHERS Rated 5.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L16-02 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963753
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

31.9 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

15.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

47.5 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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ABSA-Version 1.1

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NatHERS Rated 4.5/10 STARS*

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L16-03 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963654
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

47.4 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

7.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

54.9 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.5 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.5 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L16-04 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963589
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

35.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

45.1 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L16-04 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963597
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

35.3 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.6 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

44.9 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

62.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

62.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

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ABSA
Association of Building Sustainability Assessors

NatHERS Rated 6.0/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

1006963472
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

FRASERS PROPERTY
ISSUED TO

Unit L16-06 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

27.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

9.5 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

37.2 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

58.1 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

58.1 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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NatHERS Rated 6.5/10 STARS*

*www.nathers.gov.au

NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L16-07 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963746
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

13.1 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

17.1 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

30.2 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

99.2 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

99.2 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY


ASSESSOR SIGNATURE

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NatHERS Rated 6.0/10 STARS*

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NATIONWIDE HOUSE ENERGY RATING SCHEME

BUILDING ENERGY EFFICIENCY CERTIFICATE

FRASERS PROPERTY
ISSUED TO

Unit L16-08 2 CENTRAL PARK AVENUE
ADDRESS

Site Lot LOT 2

CHIPPENDALE

NSW

2008

1006963381
CERTIFICATION NUMBER

17/10/2014
DATE

17
CLIMATE ZONE

BERS Professional - v4.2.110811/A (BERS Professional)
SOFTWARE

27.1 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - HEATING

11.7 MJ/m^2 pa
SIMULATED ENERGY CONSUMPTION - COOLING

38.8 MJ/m^2 pa
TOTAL SIMULATED ENERGY CONSUMPTION

53.4 m^2
FLOOR AREA - CONDITIONED

0.0 m^2
FLOOR AREA - UNCONDITIONED

53.4 m^2
FLOOR AREA - TOTAL

Rebecca Chua
ASSESSOR NAME

100002
ASSESSOR NUMBER

WSP
COMPANY

ASSESSOR SIGNATURE

Issued by a BUILDING THERMAL PERFORMANCE ASSESSOR accredited by the Association of Building Sustainability Assessors to provide NatHERS house energy ratings.

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ABSA-Version 1.1

Appendix C | Sample Star Rating Report and Building Elements report

Project CPB4N Type 1a_HRW_Upd Run 1
CHIPPENDALE PC 2008 Lat -33.90 Long 151.20 Climate File climat17.TXT

Summary

Conditioned Area	53.4 m²
Unconditioned Area	0.0 m²
Total Floor Area	53.4 m²
Total Glazed Area	21.5 m²
Total External Solid door Area	1.9 m²
Glass to Floor Area	40.3 %
Gross External Wall Area	84.2 m²
Net External Wall Area	60.8 m²

Window
21.5 m² CSI-05-026a Generics CSIRO Uval 2.85 SHGC 0.31
Glass supertoned/10 Argon gap/low-e
Frame Aluminium improved (CSIRO Generic 27)

External Wall
3.0 m² Fibro Cavity Panel 70mm gap Bulk Insulation R 0.7
23.2 m² Tilt up concrete, lined Bulk Insulation R 0.7
14.1 m² Concrete Block Bulk Insulation R 1.3
20.5 m² Fibro Cavity Panel 70mm gap to neighbour Bulk Insulation R 0.5

Internal Wall
33.8 m² Cavity Panel 70mm gap No Insulation

External Floor
33.7 m² Concrete Slab, Unit Below 80/20 Carpet 10mm/Ceramic No Insulation
12.9 m² Concrete Slab, Unit Below Carpet 10mm No Insulation
6.7 m² Concrete Slab, Unit Below Ceramic Tiles 8mm No Insulation

External Ceiling
53.4 m² Concrete, Plasterboard No Insulation Apartment above

Roof (Horizontal area)
53.4 m² Concrete No Insulation, Only an Air Gap 0° slope Hip roof

Details

Zone 1 Liv/Kitchen 1 Living/Kitchen Area on Level 1

Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceilin fans
	Yes	Yes	No	No	0	0	0	No

External Floor				Area	Covering	Type
				33.74	80/20 Carpet 10mm/Ceramic	Concrete Slab, Unit Below No Insulation

Ceiling	Slope		Area	Type
				Above Ceiling
	0		33.74	Concrete, Plasterboard No Insulation
				Another apartment

Roof	Slope	Shape		Type	Solar Abs
	0	Hip		Concrete	0.50 No Insulation, Only an Air Gap

Partition Wall	Length	Height	AdjZ	Area	Type
Wall P 3	3.00	2.70	2	6.21	Cavity Panel 70mm gap No Insulation
Door Int	Width	Height	AdjZ	Area	Type
Door I(3, 1)	0.90	2.10	2	1.89	Hollow core door
Wall P 4	4.30	2.70	2	11.61	Cavity Panel 70mm gap No Insulation
Wall P 8	2.80	2.70	3	5.67	Cavity Panel 70mm gap No Insulation
Door Int	Width	Height	AdjZ	Area	Type
Door I(8, 1)	0.90	2.10	3	1.89	Hollow core door
Wall P 9	2.40	2.70	3	6.48	Cavity Panel 70mm gap No Insulation

External Wall	Length	Height	Eaves	Orient	Area	Type	Abs
						Insulation	
Wall E 1	1.80	2.70	0.00	357	2.97	Fibro Cavity Panel 70mm gap	0.50
						Bulk Insulation R0.70	
Door Ext	Width	Height	Eaves	Orient	Area	Type	
Door E(1, 1)	0.90	2.10	0.00	357	1.89	Solid timber door	
Wall E 2	1.90	2.70	0.00	357	5.13	Tilt up concrete, lined	0.50
						Bulk Insulation R0.70	
Wall E 5	4.60	2.70	0.40	87	3.45	Concrete Block	0.50
						Bulk Insulation R1.30	

Window	Width	Height	Eaves	Orient	Area	Name	Glass	Frame
						Opening	Covering	
						Shading		
Window(5, 1)	4.60	1.95	0.40	87	8.97	CSI-05-026a supertoned/10 Argon gap/low-e	Aluminium improved	(CSIRO Generic 27)
						Fixed Glass Holland Blind		
						No Shading		
Wall E 6	5.60	2.70	2.70	177	8.43	Concrete Block	0.50	
						Bulk Insulation R1.30		

Window	Width	Height	Eaves	Orient	Area	Name	Glass	Frame
						Opening	Covering	
						Shading		
Window(6, 1)	2.48	2.70	2.60	177	6.69	CSI-05-026a supertoned/10 Argon gap/low-e	Aluminium improved	(CSIRO Generic 27)
						45% Opening Sliding, Two Lites Holland Blind		
						No Shading		
Wall E 7	3.10	2.70	0.00	267	8.37	Fibro Cavity Panel 70mm gap to neighbour	0.50	
						Bulk Insulation R0.50		
Wall E 10	1.70	2.70	0.00	267	4.59	Fibro Cavity Panel 70mm gap to neighbour	0.50	
						Bulk Insulation R0.50		

Zone 2 Bed 1 Sleeping Area on Level 1

Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceilin fans
	Yes	Yes	No	No	0	0	0	No

External Floor			Area	Covering	Type
			12.90	Carpet 10mm	Concrete Slab, Unit Below No Insulation

Ceiling	Slope	Area	Type
			Above Ceiling
	0	12.90	Concrete, Plasterboard No Insulation
			Another apartment

Roof	Slope	Shape		Type	Solar Abs
	0	Hip		Concrete	0.50 No Insulation, Only an Air Gap

Partition Wall	Length	Height	AdjZ	Area	Type
Wall P 3	4.30	2.70	1	11.61	Cavity Panel 70mm gap No Insulation
Wall P 4	3.00	2.70	1	6.21	Cavity Panel 70mm gap No Insulation

Door Int	Width	Height	AdjZ	Area	Type
Door I(4, 1)	0.90	2.10	1	1.89	Hollow core door

External Wall	Length	Height	Eaves	Orient	Area	Type	Abs
						Insulation	
Wall E 1	4.30	2.70	0.00	357	11.61	Tilt up concrete, lined	0.50
						Bulk Insulation R0.70	
Wall E 2	3.00	2.70	0.40	87	2.25	Concrete Block	0.50
						Bulk Insulation R1.30	

Window	Width	Height	Eaves	Orient	Area	Name	Glass	Frame
						Opening	Covering	
						Shading		
Window(2, 1)	3.00	1.95	0.40	87	5.85	CSI-05-026a	supertoned/10 Argon gap/low-e	Aluminium improved (CSIRO Generic 27)
						Fixed Glass	Holland Blind	
						No Shading		

Zone 3 Bath 1 Other Day-time Area on Level 1

Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceilin fans
	Yes	Yes	No	No	0	0	0	No

External Floor			Area	Covering	Type
			6.72	Ceramic Tiles 8mm	Concrete Slab, Unit Below No Insulation

Ceiling	Slope	Area	Type
			Above Ceiling
	0	6.72	Concrete, Plasterboard No Insulation
			Another apartment

Roof	Slope	Shape		Type	Solar Abs
	0	Hip		Concrete	0.50 No Insulation, Only an Air Gap

Partition Wall	Length	Height	AdjZ	Area	Type
Wall P 1	2.40	2.70	1	6.48	Cavity Panel 70mm gap No Insulation
Wall P 2	2.80	2.70	1	5.67	Cavity Panel 70mm gap No Insulation

Door Int	Width	Height	AdjZ	Area	Type
Door I(2, 1)	0.90	2.10	1	1.89	Hollow core door

External Wall	Length	Height	Eaves	Orient	Area	Type	Abs
						Insulation	
Wall E 3	2.40	2.70	0.00	177	6.48	Tilt up concrete, lined	0.50
						Bulk Insulation R0.70	
Wall E 4	2.80	2.70	0.00	267	7.56	Fibro Cavity Panel 70mm gap to neighbour	0.50
						Bulk Insulation R0.50	

Appendix D | Stamped Plans

W:\CAD\dwt\Block_A\PA-A4-1010.dgn

Drawing Number	Title	Scale	Paper Size	Rev.	Assigned to
Technical Sheets					
1000- 1199					
PA A4 1010	Technical Sheet - Drawing List	NTS	A0	OO	BC/DS
PA A4 1011	Technical Sheet - Symbols and Notes	NTS	A0	OO	DS
PA A4 1013	Technical Sheet - Area Schedule	NTS	A0	OO	BC/GMc/BM/DS
Site Plan					
1280-1299					
PA A4 1280	Sun studies	NTS	A0	OO	DS
PA A4 1281	Sun studies	NTS	A0	OO	DS
PA A4 1282	Sun studies	NTS	A0	OO	DS
PA A4 1283	Sun studies	NTS	A0	OO	DS
PA A4 1284	Sun studies	NTS	A0	OO	DS
PA A4 1285	Sun studies	NTS	A0	OO	DS
PA A4 1286	Sun studies	NTS	A0	OO	DS
PA A4 1287	Sun studies	NTS	A0	OO	DS
PA A4 1288	Sun studies	NTS	A0	OO	DS
PA A4 1289	Sun studies	NTS	A0	OO	DS
PA A4 1290	Sun studies	NTS	A0	OO	DS
PA A4 1291	Sun studies	NTS	A0	OO	DS
PA A4 1300	Shadow studies	NTS	A0	OO	DS
PA A4 1301	Shadow studies	NTS	A0	OO	DS
PA A4 1302	Shadow studies	NTS	A0	OO	DS
PA A4 1303	Shadow studies	NTS	A0	OO	DS
PA A4 1304	Shadow studies	NTS	A0	OO	DS
PA A4 1305	Shadow studies	NTS	A0	OO	DS
PA A4 1306	Shadow studies	NTS	A0	OO	DS
PA A4 1307	Shadow studies	NTS	A0	OO	DS
PA A4 1308	Shadow studies	NTS	A0	OO	DS
PA A4 1309	Shadow studies	NTS	A0	OO	DS
PA A4 1310	Shadow studies	NTS	A0	OO	DS
PA A4 1311	Shadow studies	NTS	A0	OO	DS
External Works					
1500-1749					
PA A4 1500	Landscaping	1:500	A0	OO	GMc/BM/JB
PA A4 1600	Public Domain Plan	1:200	A0	OO	GMc/BM/JB
PA A4 1605	Staging Plan	1:250	A0	OO	GMc/BM/JB
General Arrangement Plans					
1750 - 1899					
PA A4 1755	Level B4	1:200	A0	OO	GMc/BM/JB
PA A4 1756	Level B3	1:200	A0	OO	GMc/BM/JB
PA A4 1757	Level B2	1:200	A0	OO	GMc/BM/JB
PA A4 1758	Level B1	1:200	A0	OO	GMc/BM/JB
PA A4 1759	Level B0 / Lower Ground Floor	1:200	A0	OO	GMc/BM/JB
PA A4 1760	Ground Floor	1:200	A0	OO	GMc/BM/JB
PA A4 1761	Level 01	1:200	A0	OO	GMc/BM/JB
PA A4 1762	Level 02	1:200	A0	OO	GMc/BM/JB
PA A4 1763	Level 03	1:200	A0	OO	GMc/BM/JB
PA A4 1764	Level 04	1:200	A0	OO	GMc/BM/JB
PA A4 1765	Hotel Level 05 / Office Level 05	1:200	A0	OO	GMc/BM/JB
PA A4 1766	Hotel Levels 06-08 / Office Levels 06-07	1:200	A0	OO	GMc/BM/JB
PA A4 1767	Hotel Levels 09-12 / Office Levels 08-10	1:200	A0	OO	GMc/BM/JB
PA A4 1768	Hotel Level 13 / Residential Level 11	1:200	A0	OO	GMc/BM/JB
PA A4 1769	Hotel Level 14 / Residential Level 12	1:200	A0	OO	GMc/BM/JB
PA A4 1770	Hotel Level 15 / Residential Level 13	1:200	A0	OO	GMc/BM/JB
PA A4 1771	Hotel Level 16 / Residential Level 14	1:200	A0	OO	GMc/BM/JB
PA A4 1772	Hotel Level 17 / Residential Level 15	1:200	A0	OO	GMc/BM/JB
PA A4 1773	Hotel Level 18 / Residential Level 16	1:200	A0	OO	GMc/BM/JB
PA A4 1774	Level 19 - Plant	1:200	A0	OO	GMc/BM/JB
PA A4 1775	Level 20 - Roof	1:200	A0	OO	GMc/BM/JB
PA A4 1785	Apartment Typology – Typical 1-bed	1:100	A3	OO	GMc/BM/JB
PA A4 1786	Apartment Typology – Typical 1-bed - Adaptable	1:100	A3	OO	GMc/BM/JB
PA A4 1787	Apartment Typology – Typical 1-bed + Study - Type 1	1:100	A3	OO	GMc/BM/JB
PA A4 1788	Apartment Typology – Typical 1-bed + Study - Type 2	1:100	A3	OO	GMc/BM/JB
PA A4 1789	Apartment Typology – Typical 2-bed - Adaptable	1:100	A3	OO	GMc/BM/JB
PA A4 1790	Apartment Typology – Typical 2-bed / Dual Key	1:100	A3	OO	GMc/BM/JB
PA A4 1800	Hotel Typology – Typical Suite - Type 1	1:100	A3	OO	GMc/BM/JB
PA A4 1801	Hotel Typology – Typical Suite - Type 2	1:100	A3	OO	GMc/BM/JB
PA A4 1805	Hotel Typology – Typical 1-bed - Type 01	1:100	A3	OO	GMc/BM/JB
PA A4 1806	Hotel Typology – Typical 1-bed - Type 02	1:100	A3	OO	GMc/BM/JB
PA A4 1807	Hotel Typology – Typical 1-bed - Type 03 - Accessible Unit	1:100	A3	OO	GMc/BM/JB
PA A4 1808	Hotel Typology – Typical 2-bed / Dual Key	1:100	A3	OO	GMc/BM/JB
General Arrangment Elevations					
2050-2249					
PA A4 2050	Elevation 01 Broadway - North façade	1:200	A0	OO	LB
PA A4 2051	Elevation 02 Link with Block 1 - East façade	1:200	A0	OO	LB
PA A4 2052	Elevation 03 Tooth Lane Link with Block 4S - South facade	1:200	A0	OO	LB
PA A4 2053	Elevation 04 Abercrombie Street - West facade	1:200	A0	OO	LB
General Arrangement Sections					
2250-2499					
PA A4 2250	Section 01 North-South Section through Hotel	1:200	A0	OO	JB
PA A4 2251	Section 02 North-South Section through Office/Residential	1:200	A0	OO	JB
PA A4 2252	Section 03 North-South Section through Central Circulation	1:200	A0	OO	JB
PA A4 2253	Section 04 Longitudinal Section through B4N + 1	1:200	A0	OO	JB
Detailed Elevations					
3500-3550					
PA A4 3500	Detailed Elevation Broadway - North Facade	1:50	A0	OO	LB
PA A4 3501	Detailed Elevation Pedestrian Link with Block 1 - East Facade	1:50	A0	OO	LB
PA A4 3502	Detailed Elevation Pedestrian Link with Block 4S - South Facade	1:50	A0	OO	LB
PA A4 3503	Detailed Elevation Abercrombie Street - West Facade	1:50	A0	OO	LB
Cladding/ External Wall Systems					
3770-3900					
PA A4 3770	External Wall System - Typical Tower Cladding Typologies	1:100	A0	OO	LB
PA A4 3771	External Wall System - Typical Office / Childcare Facade - Cladding Type O1	1:20	A0	OO	LB
PA A4 3772	External Wall System - Typical Childcare Terrace Facade - Cladding Type O2	1:20	A0	OO	LB
PA A4 3775	External Wall System - Typical Residential Facade - Cladding Type R1	1:20	A0	OO	LB
PA A4 3776	External Wall System - Typical Residential balcony Facade - Cladding Type R2	1:20	A0	OO	LB
PA A4 3777	External Wall System - Typical Residential Neck Facade - Cladding Type R3	1:20	A0	OO	LB
PA A4 3778	External Wall System - Typical Residential Atrium Facade - Cladding Type R4	1:20	A0	OO	LB
PA A4 3780	External Wall System - Typical Hotel Unit Facade - Cladding Type H1	1:20	A0	OO	LB
PA A4 3781	External Wall System - Typical Hotel Corridor Facade - Cladding Type H2	1:20	A0	OO	LB
PA A4 3782	External Wall System - Typical Hotel Slot Unit Facade - Cladding Type H3	1:20	A0	OO	LB
PA A4 3785	External Wall System - Typical Podium Façade - Lobby & Pool	1:20	A0	OO	LB
PA A4 3786	External Wall System - Typical Podium Façade - Lobby & Hotel Rooms	1:20	A0	OO	LB
Visualisation					
3990-4000					
PA A4 3990	Views Corner - Visualisation	NTS	A0	OO	DS
PA A4 3991	Views Park - Visualisation	NTS	A0	OO	DS
PA A4 3992	Views Entrance - Visualisation	NTS	A0	OO	DS

General Notes

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ABSA Class 2 Building Project Certification

Certification Number	1006955205
Certification Date	17/10/2014
Assessor Name	Rebecca Chua
Assessor Number	100002
Assessor Signature	

Averaged Simulated Energy: HEATING: 25.1 MJ/m2.pa
Averaged Simulated Energy: COOLING: 11.9 MJ/m2.pa
Rated with Greenlights
Averaged NatHERS Rating 26.1 MJ/m2.pa

6.1/10 NatHERS

Rev.	Date	Reason For Issue	Chk
00	15/10/14	SSD Application	RP

For information

Key Plan

FRASERS PROPERTY

Project Frasers Broadway
20 - 102 Broadway Sydney NSW 2000

Client Frasers Broadway
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Technical Sheet
Drawing List

Project No.	Scale @ A0	Date	Drawn By
2094	NTS	08/10/14	DS

Number	Revision
PA-A4-1010	00

A0 sheet size

15-OCT-2014 16:43

1.0. Symbols

Grid Line Symbol	23	
Elevation Floor Height Symbol	FFL Level 12 EL.+ 23.456	
Spot Level	+23.456	
Exterior Elevation Symbol	23 A3700	Elevation Designation With Sheet Reference Number
Building Section Symbols	23 A3575	Section Designation With Sheet Reference Number
Room Identification Symbol	Lobby 1234 FFL +23.456	
Slab Penetrations		

Building element	Description
Floor to ceiling height	2.7m
External walls	Precast concrete panels - 160mm minimum thickness; provide R1.1 m^2.K/W insulation in all external walls to provide R_{total} 1.5 m^2.K/W (for further details refer to façade sections provided by the façade engineer in their SSDA report)
Party walls	Cavity panel; insulation in all party walls to meet acoustic requirements (R0.7 m^2.K/W insulation used in NatHERS model to provide R_{total} 1.0 m^2.K/W)
Walls to lifts, stair wells, toilets, plant areas, etc.	Tilt Concrete – lined - 200mm thickness; R0.7 m^2.K/W insulation in all walls to provide R_{total} 1.1 m^2.K/W
Internal wall between living/bedroom spaces	Cavity Panel; no insulation included in the model (insulation in internal spaces would not alter the thermal performance of the apartments); insulation to be specified based on acoustic requirements.
Internal wall between living/bedroom spaces to bathroom/ensuite space	Cavity Panel; no insulation included in the model (insulation in internal spaces would not alter the thermal performance of the apartments); insulation to be specified based on acoustic requirements.
Common area corridors	No minimum insulation levels on the external walls to common area corridors are required.
Walls to common corridors	Cavity panel; insulation in all party walls to meet acoustic requirements (R0.7 m^2.K/W insulation used in NatHERS model to provide R_{total} 1.0 m^2.K/W—tbc by acoustic consultant during Detailed Design)
Skylights	No skylights at the apartments.
Vented downlights	Vented downlights, wherever specified in apartments with ceiling to the exposed roof, will not compromise the levels of insulation on the roof (i.e. there will not be any penetrations to the insulation due to the downlights)
Doors	• External: Solid core • Internal: Hollow core
Window coverings	• Holland blinds*
Insect screens	• Yes*
Ceiling fans	• None

Building element	Description
Floors	Floor coverings—tiles for kitchens, living room areas, bathrooms and corridors; carpet for bedrooms and living areas were included in the NatHERS model. Actual floor covering will be developed during Detailed Design.
Ceilings	• Internal ceilings between apartments: Concrete with plasterboard, no insulation. • For all apartments with a ceiling to the exposed roof: See "Roof" section below.
Roofs	Concrete slab, medium colour, no cavity, R1.4m^2.K/W insulation to achieve an R_{total} 1.5 m^2.K/W on all apartments with a ceiling to the exposed roof, apart from apartment L16-03 which requires R2.0m^2.K/W insulation to achieve an R_{total}2.1 m^2.K/W
Glazing type	Aluminium framed, double glazing. Provide the following whole of window parameters—U-value: 2.85 W/m^2K | Solar Heat Gain Coefficient (SHGC): 0.31 (NFRC Values) (mid – pane values: U-value 1.66 W/m^2 K and SHGC 0.35 with aluminium frames) for all clear glazing at the thermal envelope.
Opening type and shading	As shown on Fosters elevations and façade detail. Please refer to the façade section of the architectural SSDA Summary Report.

**Insect screens and holland blinds are required as default parameters by the NatHERS modelling protocol*

*** If reflective insulation is selected this can act to reduce the R-value performance (thickness) of the insulation*

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ABSA Association of Building Sustainability Assessors
Class 2 Building Project Certification

Certification Number	1006955205
Certification Date	17/10/2014
Assessor Name	Rebecca Chua
Assessor Number	100002
Assessor Signature	

Averaged Simulated Energy: HEATING: 25.1 MJ/m2 pa
Averaged Simulated Energy: COOLING: 11.0 MJ/m2 pa
Rated with Downlights: No
Averaged NatHERS Rating 36.1 MJ/m2 pa
6.1/10

Rev.	Date	Reason For Issue	Chk
00	15/10/14	SSD Application	RP

For information

Key Plan

FRASERS PROPERTY

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Technical Sheet
Symbols and Notes

Project No.	Scale @ A0	Date	Drawn By
2094	NTS	08/10/14	DS

Number: PA-A4-1011
Revision: 00

Area Schedule -

Level	Total GFA (sqm) (as defined by DPI) (not including risers and plant rooms)	GFA (sqm) Residentail Apartments	Office	Hotel	Retail	Childcare	Heritage Pub inc. cellars	No. of Hotel Units Studio 30 sqm	1-Bed 40 sqm	Accessible 40 sqm	2_bed Dual Key 70 sqm	No. of Resi Units 1-Bed	1-Bed + Study	2-Bed	2-Bed Dual Key
Level 19 (Roof)															
Level 18	798			798				14	2	1	1				
Level 17	798			798				14	2	1	1				
Level 16	1,387	589		798				14	2	1	1	3	3	0	2
Level 15	1,387	589		798				14	2	1	1	3	3	0	2
Level 14	1,387	589		798				14	2	1	1	3	3	0	2
Level 13	1,387	589		798				14	2	1	1	3	3	0	2
Level 12	1,387	589		798				14	2	1	1	3	3	0	2
Level 11	1,326	550		776				16	0	1	1	3	3	2	0
Level 10	1,817		1,011	806				14	2	1	1				
Level 09	1,817		1,011	806				14	2	1	1				
Level 08	1,817		1,011	806				15	3	1	0				
Level 07	1,817		1,011	806				15	3	1	0				
Level 06	1,817		1,011	806				15	3	1	0				
Level 05	1,808		1,002	806				15	3	1	0				
Level 04	1,585			806		779		15	3	1	0				
Level 03 (Neck)	628			342		286									
Level 02	572			448			124	8	0	0	0				
Level 01	1,097			560	218		319								
Ground	703	23	15	632	18	15									
Lower Ground Floor	420		74				346								
Total	25,755	3,518	6,146	13,986	236	1,080	789	225	33	15	10	18	18	2	10
								283				48.0			
Concept Masterplan Target	25,930														

GFA Standard Instrument (Local Environmental Plans) Order 2006

***gross floor area** means the sum of the floor area of each storey of a building measured from the internal face of external walls, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor, and **includes**:*

(a) the area of a mezzanine within the storey, and

(b) habitable rooms in a basement, and

(c) any shop, auditorium, cinema, and the like, in a basement or attic,

but excludes:

(d) any area for common vertical circulation, such as lifts and stairs, and

(e) any basement: (i) storage, and (ii) vehicular access, loading areas, garbage and services, and

(f) plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and

(g) car parking to meet any requirements of the consent authority (including access to that car parking), and

(h) any space used for the loading or unloading of goods (including access to it),and

(i) terraces and balconies with outer walls less than 1.4 metres high, and

(j) voids above a floor at the level of a storey or storey above.

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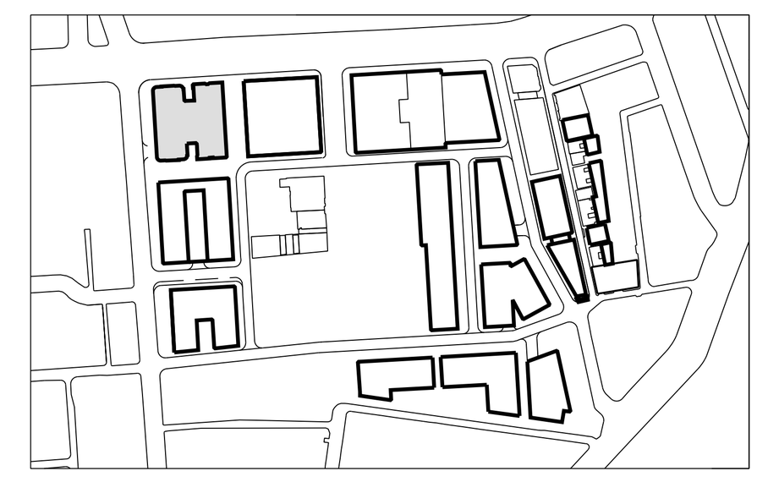
ABSA Class 2 Building Project Certification

6.1/10

Rev.	Date	Reason For Issue	Chk
00	15/10/14	SSD Application	RP

For information

Key Plan



FRASERS PROPERTY

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Technical Sheet
Area Schedule

Project No.	Scale @ A0	Date	Drawn By
2094	NTS	01/10/14	GM

Number	Revision
PA-A4-1013	00

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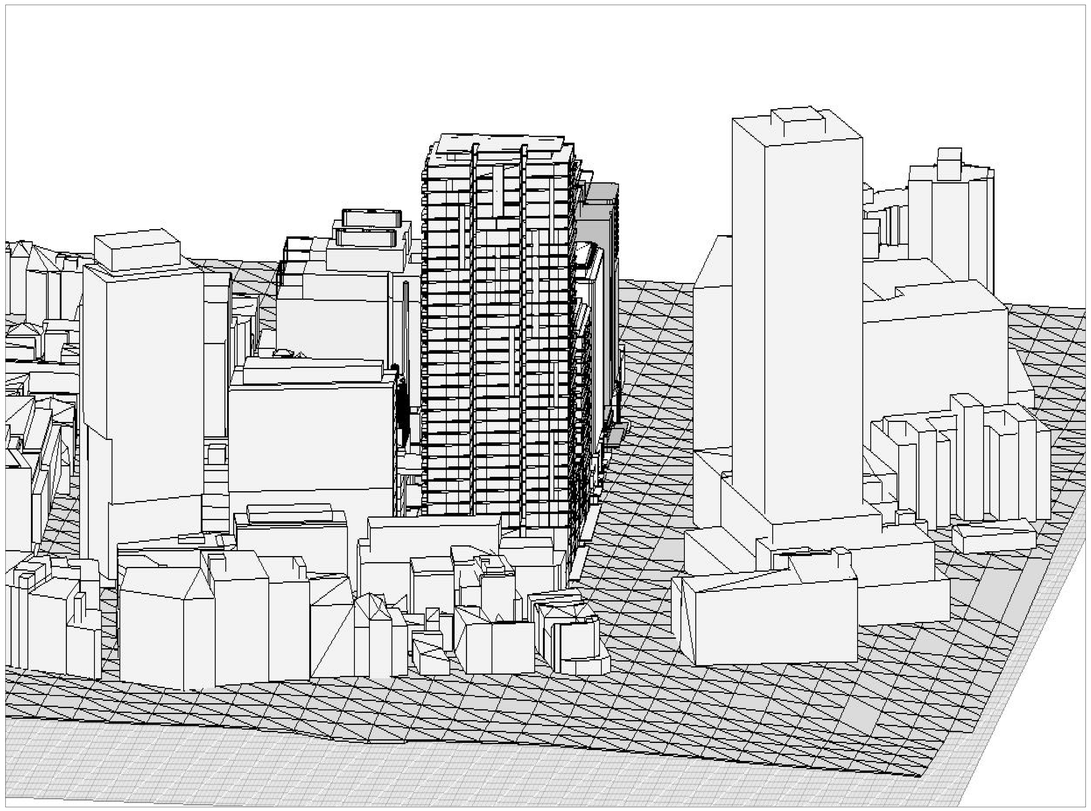

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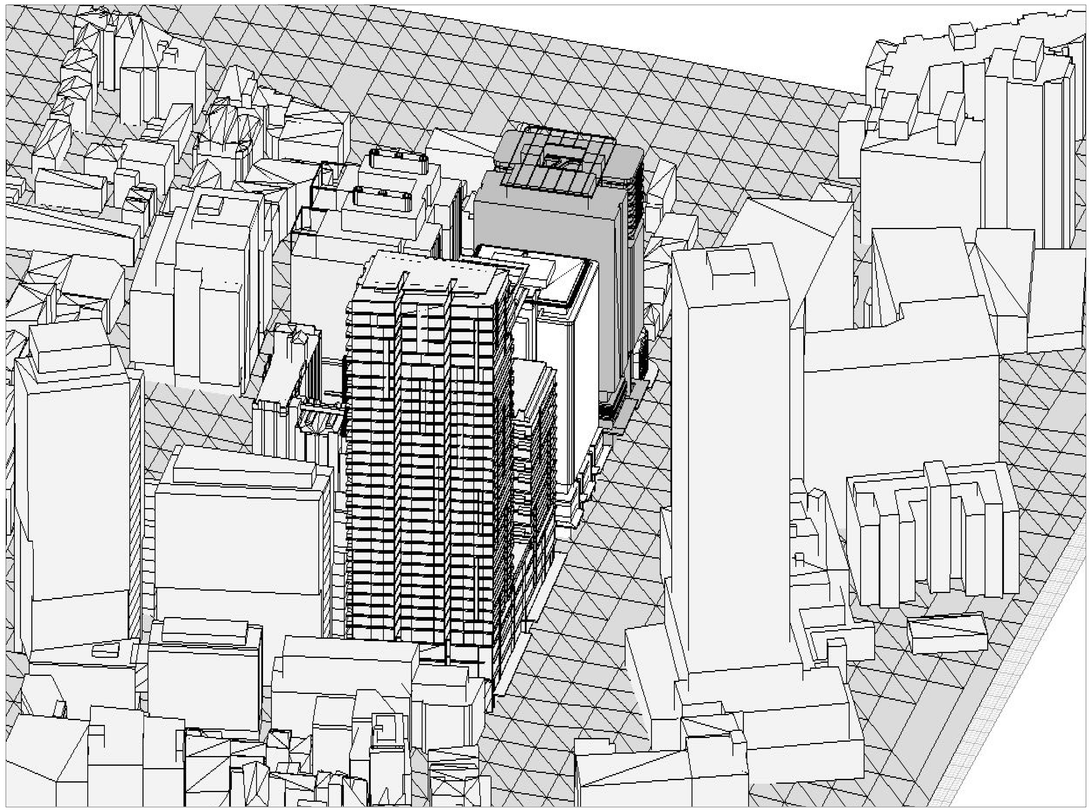

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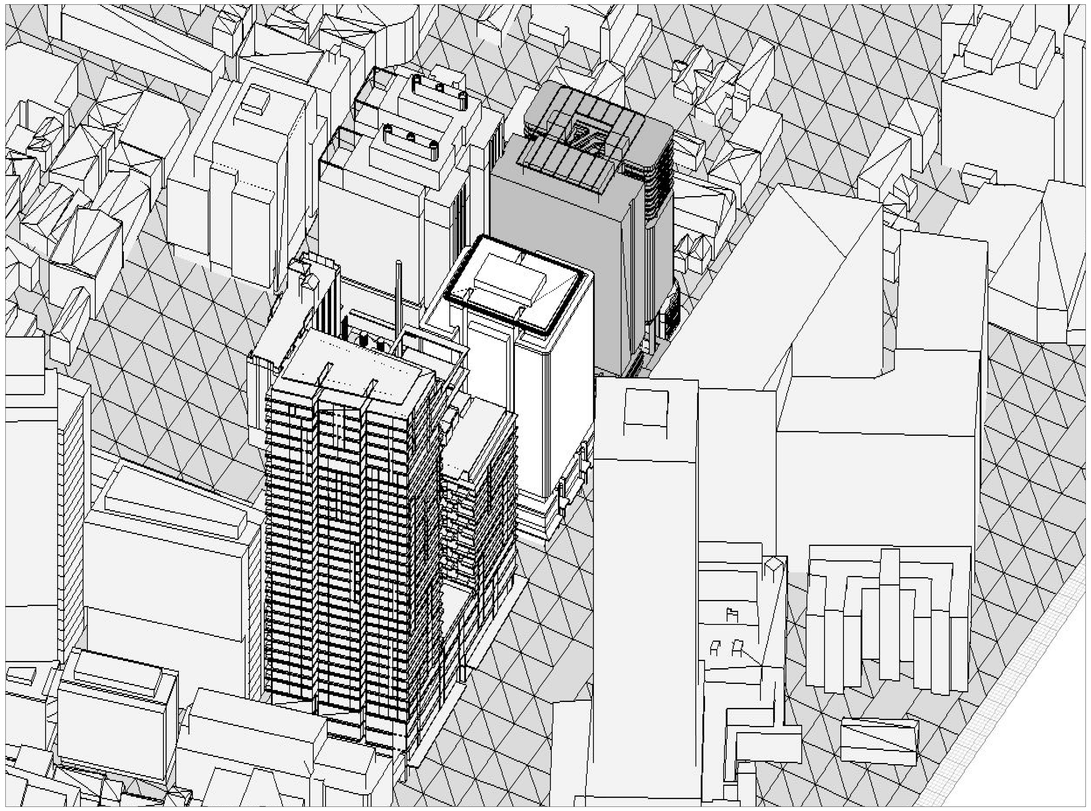

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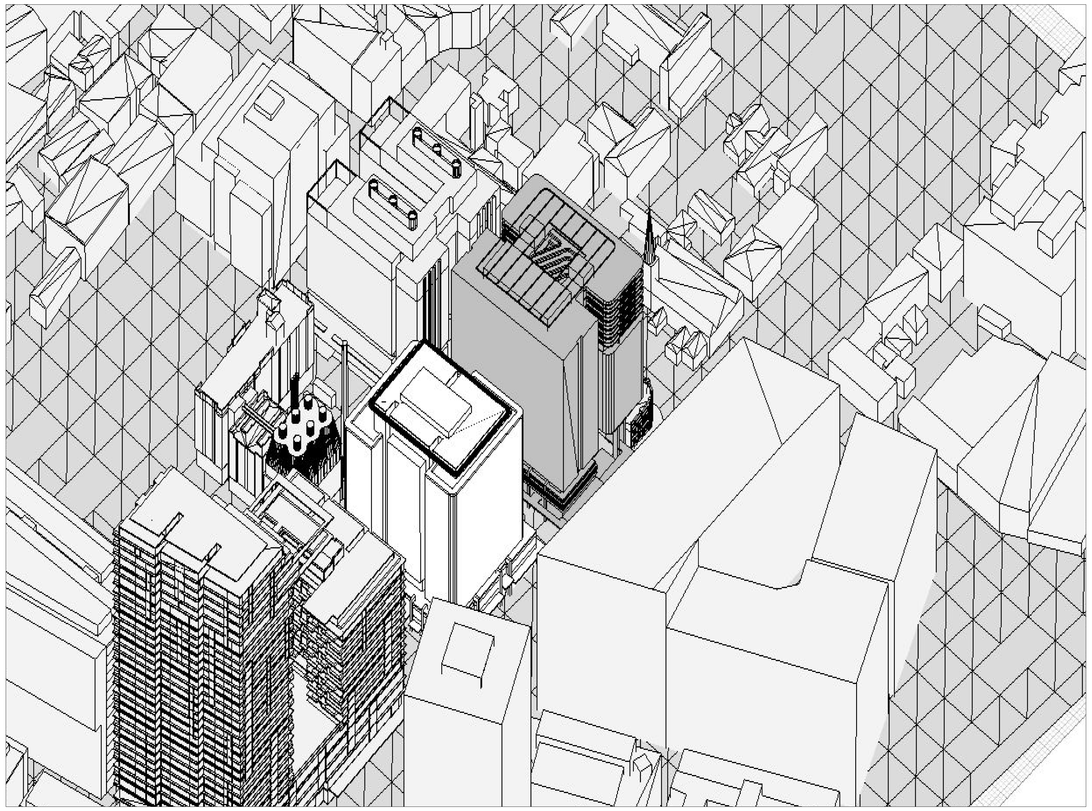

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10:00 AM

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6. Australian Eastern Time Zone: UTC/GMT +10 hours

NOTE: shadow study and comparison indicative only.
All areas are to be confirmed by a specialist consultant

ABSA
Class 2 Building Project Certification

Certification Number	1008955205
Certification Date	17/10/2014
Assessor Name	Rebecca Chua
Assessor Number	100002
Assessor Signature	

Averaged Simulated Energy: HEATING 25.1 MJ/m2.pa
Averaged Simulated Energy: COOLING 11.9 MJ/m2.pa
Rated with Greenlights
Averaged NatHERS Rating 30.1 MJ/m2.pa
6.1/10

Rev.	Date	Reason For Issue	Chk
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For information

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SERS PROPERTY

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Block 4N
Sun Studies

Project No.	Scale @ A0	Date	Drawn By
2094	NTS	08/10/14	DS

Number	Revision
PA-A4-1280	00

A0 sheet size

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