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BASIX ASSESSMENT REPORT

Building Sustainability Index Assessment

Site Address

22-24 Angle Street, BALGOWLAH

Lot and DP

6 & 7//9585

Client

Steve Gillespie

Local Government Area

Northern Beaches

Proposed Development

Multi-Unit Building

Commissioned by

Wolski Coppin

Assessment Date

07/02/2023

Reference Number

2302655

1 INTRODUCTION

This Building Sustainability Index Assessment Report has been prepared on behalf of Steve Gillespie for a proposed residential development at 22-24 Angle Street, BALGOWLAH.

The report summarises the Environmentally Sustainable Design (ESD) initiatives adopted by the proponent as part of the proposed building design. The BASIX protocol focuses on three main indices of ESD, those being water, thermal comfort and energy efficiency.

The proposed development achieves the BASIX water, thermal comfort and energy efficiency targets.

1.1 SUMMARY

The proponent proposes:

i. Demolition of existing buildings, tree removal and site clearing
ii. Construction of a multi-storey residential flat buildings comprising:
    i. 8 x Sole Occupancy Units;
    ii. Basement Carparking

This BASIX report has been prepared to support the DA submission as a legislative requirement in accordance with the Environmental Planning and Assessment Act (2000) and BASIX SEPP (2004).

Based on project specific inputs and the minimum legislative provisions outlined in this report, the proposed development meets the minimum BASIX requirements for energy, water, and thermal comfort respectively.

BASIX Indices	Target	Score Achieved
Water	40 %	46 %
Thermal Comfort	Pass	Pass
Energy	45 %	54 %

2 PROPOSAL CHARACTERISTICS

2.1 SITE DESCRIPTION

The site is identified legally as the following:

- Lot 6 in Deposited Plan 9585; and
- Lot 7 in Deposited Plan 9585.

It is commonly known as 22-24 Angle Street, BALGOWLAH. The subject site has an area of 834.60 m^2.

Please refer to the below aerial image.

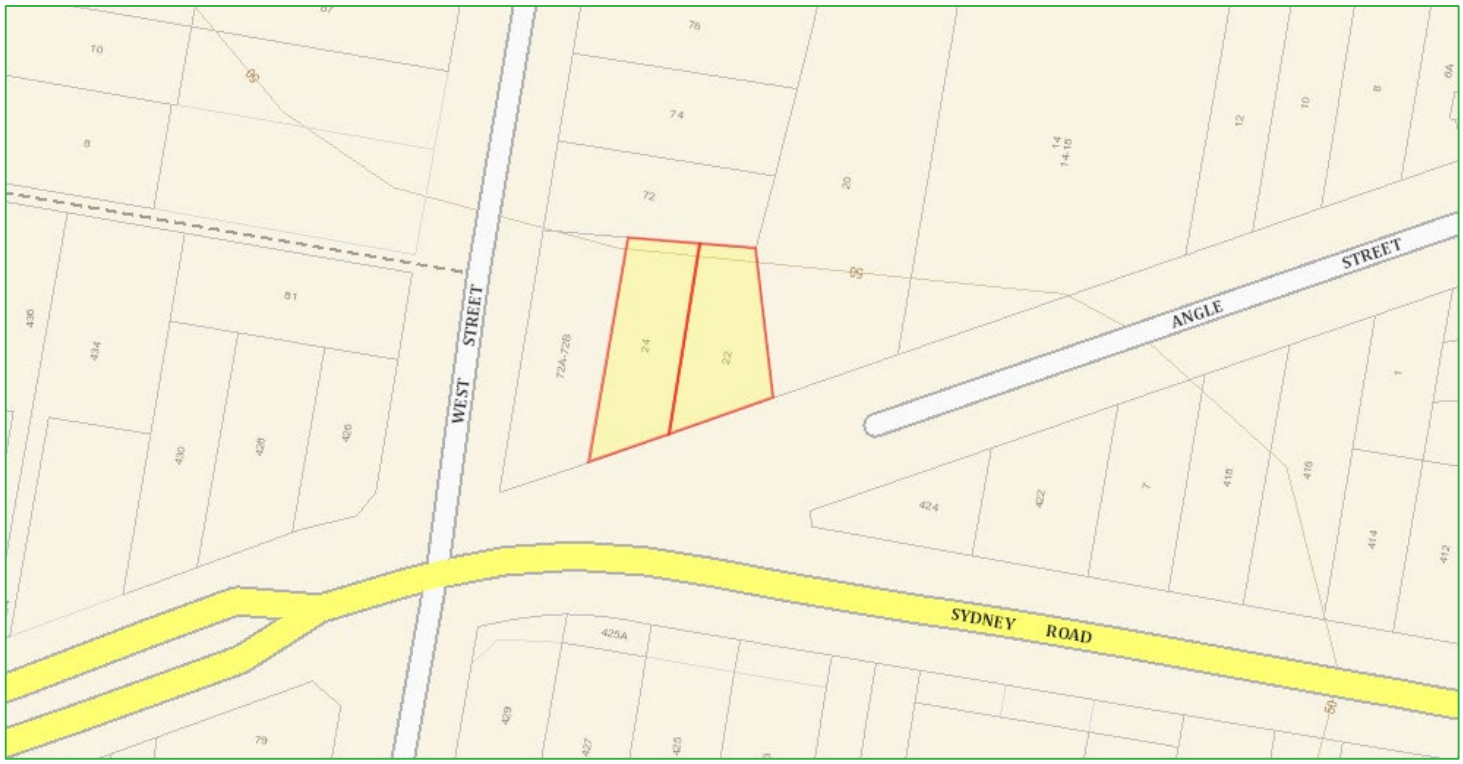

Figure 1 - Aerial Image

2.2 SITE ANALYSIS

The site is located within a well established area with a mixture of commercial and residential developments. There are existing residential buildings on the site with associated light infrastructure.

The subject site has road frontages to Angle Street, with the latter to be used for general service vehicle access.

2.3 PROPOSED DEVELOPMENT

The proposed development includes the demolition of an existing commercial development with light infrastructure and the subsequent construction of a multi-storey mixed residential and ancillary site works.

The proposed building will include the following:

- Parking for 14 cars with one visitor space;
- Eight residential townhouses in a total of one building core.

2.4 SITE ACCESS

The subject site has frontages to Angle Street. Vehicular access to the site is via a shared driveway on the eastern edge of the site, adjacent to Angle Street.

2.5 SITE SERVICES

The site has access to all necessary essential services including water, sewer, electricity and telecommunications.

3 BUILDING SUSTAINABILITY INDEX SUMMARY

3.1 INTRODUCTION

The Building Sustainably Index (BASIX) for the state of NSW forms the minimum compliance control for any new residential developments as defined by the Department of Planning Industry and Environment.

The BASIX assessment outlines a minimum target of improvement for the proposed development's water, energy and thermal comfort performance. The minimum benchmark of improvement for each index is based on the location, size, height and dwelling density of project development.

The proposed residential development has been assessed as one residential flat building, consisting of 8 Sole occupancy units in total. For this type of development, the following minimum BASIX targets must be achieved as defined by the State of NSW:

- 40% improvement in Water consumption
- All units to 'pass' the minimum thermal performance requirements for heating and cooling (as defined by the development's climate zone)
- 45% Improvement in Energy consumption

The minimum targets required for water and energy represent a percentage saving and improvement for the development when compared to that of an average benchmark development for NSW.

The thermal comfort targets are assessed on an individual dwelling basis and are defined by the developments proposed location in NSW.

Each dwelling must not exceed the maximum annual predicted heating and cooling load capacities outlined by BASIX; this is assessed using the NatHERS thermal comfort software based on the CSIRO's CHENATH engine.

For the proposed development, the following individual dwelling targets must be achieved:

Maximum dwelling heating load	45.4	MJ/m^2
Maximum dwelling cooling load	29.5	MJ/m^2

4 BUILDING SUSTAINABILITY INDEX COMPLIANCE

4.1 WATER EFFICIENCY

The following table outlines the water strategy proposed for the development. The project is currently achieving a 6% improvement on the BASIX average benchmark. The target is based on a minimum 40% compliance score.

4.2 THERMAL COMFORT

Thermal Comfort for each dwelling has been assessed out in accordance with the BASIX Thermal Comfort Protocol as defined by the Department of Planning Industry and Environment.

Thermal comfort levels for all proposed dwellings have been assessed using the CHENATH Engine. This approach has been approved by the National House Energy Rating Scheme (NatHERS) and aims to predict annual heating and cooling loads of each dwelling.

Further information in to the NatHERS assessment is provided in the attached Thermal Comfort Simulation Assessment.

To satisfy the BASIX thermal comfort requirements, the following objectives must be achieved:

- The individual heating and cooling loads for each dwelling must not exceed the limit specified in the BASIX scheme
- The average heating and cooling loads of all dwellings in a development must not exceed the specified average limit

For the proposed development these requirements are as per below:

Target	Heating Load (MJ/m²)	Cooling Load (MJ/m²)
Individual Dwellings	45.4	29.5
Overall Dwelling Average	40.0	26.0

4.3 ENERGY EFFICIENCY

The following table outlines the energy strategy proposed for the development. The project is currently achieving a 9% improvement on the BASIX average benchmark. The target is based on a minimum 45% compliance score.

Water Efficiency Commitments

Description		Requirements			
Common Areas and Systems	Alternative Water Supply Systems	Central Water Tank – Rainwater/Stormwater		10,000 Litres	
	Common Swimming Pool	Location	NA	Volume	NA
	Common Area Fixtures	Showerheads	No common facilities		
		Toilets	No common facilities		
		Laundry/Bathroom Taps	No common facilities		
		Clotheswasher	No common facilities		
Individual Dwellings	Fixtures	Showerheads	3 Star (>4.5 but <= 6 L/min)		
		Toilets	4 Star		
		Kitchen taps	5 Star		
		Bathroom taps	5 Star		
	Appliances	Dishwashers	3 Star		
		Clothes Washer	--		
	Hot Water Recirculation and Diversion	Not required			
	Alternative Water Supply	Landscaping	NA		
		Toilets	Toilets to be connected to alternative water supply		
		Laundry	Clothes washer fixture to be connected to alternative water supply		
		Pool Top up	NA		

Thermal Comfort Commitments

The development must be constructed 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.

Energy Efficiency Commitments

Description		Requirements					
Common Areas and Systems		Ventilation System		Lighting System			
	Common Area	Ventilation System	Efficiency Measure	Primary type of lighting	Efficiency Measure	BMS	
	Carpark Area	Ventilation (Supply & Exhaust)	Carbon Monoxide monitor + VSD Fan	LED	Zoned switching with daylight sensor	No	
	Lift Car	--	--	LED	Connected to lift call button	No	
	Ground Floor Lobby	No Mechanical Ventilation	--	LED	Time clocks	No	
	Hallway/Lobby	No Mechanical Ventilation	--	LED	Time clocks	No	
	Lift No. 1	Gearless traction with VVVF motor		Number of Levels Serviced	3		
	Alternative Energy	Photovoltaic System	9.0	kW peak output	Cogeneration System	Nil	
Individual Dwellings	Hot Water System	The applicant must install the following hot water system in the development, or a system with a higher energy rating:		Gas Instantaneous (6 Stars)			
	Ventilation	Location		Description	Operational Control		
		Bathrooms		Individual fan, ducted to façade or roof	Manual switch On/Off		
		Kitchens		Individual fan, ducted to façade or roof	Manual switch On/Off		
		Laundry		Individual fan, ducted to façade or roof	Manual switch On/Off		
	Cooling System	Living Area		Bedroom Area			
		3-phase airconditioning EER 3.0-3.5 (zoned)		3-phase airconditioning EER 3.0-3.5 (zoned)			
	Heating System	Living Area		Bedroom Area			
		3-phase airconditioning EER 3.0-3.5 (zoned)		3-phase airconditioning EER 3.0-3.5 (zoned)			
	Artificial Lighting	The applicant must ensure that the "primary type of artificial lighting" is fluorescent or light emitting diode (LED) lighting and the fittings for those lights must only be capable of accepting fluorescent or light emitting diode (LED) lamps					
	Natural Lighting	The applicant must install a window and/or skylight in the kitchen of the dwelling for natural lighting.					
	Appliances	Kitchen Cooktop/Oven					
		Refrigerator					
		Well Ventilated Fridge Space					
		Dishwasher					
		Clotheswasher					
		Clothes Dryer					
		Clothes Drying Lines	Indoor or sheltered	No	Private Outdoor	No	

NSW NCC Provisions

Building Fabric Thermal Insulation

NSW 3.12.1 Application of NSW Part 3.12.1

a) Compliance with NSW 3.12.1.1 satisfies NSW P2.6.1(a) for thermal insulation and thermal breaks.
b) NSW PART 3.12.1 only applies to thermal insulation in a Class 1 or 10 building where a development consent specifies that the insulation is to be provided as part of the development.
c) In (b), the term development consent has the meaning given by the Environmental Planning and Assessment Act 1979.
d) The Deemed-to-Satisfy Provisions of this Part for thermal breaks apply to all Class 1 buildings and Class 10a buildings with a conditioned space.

NSW 3.12.1.1 Compliance with BCA Provisions

a) Thermal insulation in a building must comply with the national BCA provisions of 3.12.1.1.
b) A thermal break must be provided between the external cladding and framing in accordance with national BCA provisions of—
    i. 3.12.1.2(c) for a metal framed roof; and
    ii. 3.12.1.4(b) for a metal framed wall.
c) Compensation for reduction in ceiling insulation must comply with the national BCA provisions of 3.12.1.2(e).
d) A floor with an in-slab or in-screed heating or cooling system must comply with the national BCA provisions of—
    i. 3.12.1.5(a)(ii), (iii) and (e) for a suspended floor; or
    ii. 3.12.1.5(c), (d) and (e) for a concrete slab-on-ground.

Building Sealing and Services

NSW 3.12.3 Application of NSW Part 3.12.3

a. Compliance with NSW 3.12.3.1 satisfies NSW P2.6.1(b) for building sealing.
b. NSW Part 3.12.3 is not applicable to—
    i. existing buildings being relocated; or
    ii. Class 10a buildings—
        A. without a conditioned space; or
        B. for the accommodation of vehicles; or
    iii. parts of buildings that cannot be fully enclosed; or
    iv. a permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of a gas appliance; or
    v. a building in climate zones 2 and 5 where the only means of air-conditioning is by using an evaporative cooler.

NSW 3.12.3.1 Compliance with BCA Provisions

The sealing of a building must comply with the national BCA provisions 3.12.3.1 to 3.12.3.6.

NSW 3.12.5 Services: Application of NSW Part 3.12.5

a. Compliance with NSW 3.12.5.1 satisfies NSW P2.6.2 for services.
b. NSW Part 3.12.5 is not applicable to existing services associated with existing buildings being relocated.

NSW 3.12.5.1 Compliance with BCA Provisions

Services must comply with the national BCA provisions 3.12.5.0 to 3.12.5.3.

Limitations

This report was prepared for the purposes and exclusive use of the stated client to accompany an application to the relevant Council for the specified development application and is not to be used for any other purpose or by any other person or corporation.

The information contained in this report is based on plans and specifications provided to Senica Consultancy Group. To the best of our knowledge, it does not contain any false, misleading or incomplete information.

Should the plans or specifications be modified in any way, this report and any appurtenant articles are rendered null and void. Modification to the plans and specifications requires an amended report be prepared addressing the relevant changes.

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APPENDIX A

BASIX Certificate

BASIX® Certificate

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

Multi Dwelling

Certificate number: 1368815M

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

Secretary
Date of issue: Thursday, 16 February 2023
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT | Planning, Industry & Environment

Project summary	
Project name	22-24 Angle Street BALGOWLAH
Street address	22-44 Angle Street BALGOWLAH 2093
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 9585
Lot no.	7
Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	8
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 46	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 54	Target 45

Certificate Prepared by
Name / Company Name: Senica Consultancy Group Pty Ltd
ABN (if applicable): 48612864249

Description of project

Project address	
Project name	22-24 Angle Street BALGOWLAH
Street address	22-44 Angle Street BALGOWLAH 2093
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 9585
Lot no.	7
Section no.	-
Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	8
No. of multi-dwelling houses	0
No. of single dwelling houses	0
Site details	
Site area (m²)	834.6
Roof area (m²)	400
Non-residential floor area (m²)	0.0
Residential car spaces	15
Non-residential car spaces	0

Common area landscape		
Common area lawn (m²)	212.58	
Common area garden (m²)	124.01	
Area of indigenous or low water use species (m²)	0.0	
Assessor details		
Assessor number	BDAV/14/1658	
Certificate number	HR-KEGCNI-01	
Climate zone	56	
Ceiling fan in at least one bedroom	No	
Ceiling fan in at least one living room or other conditioned area	No	
Project score		
Water	✔ 46	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 54	Target 45

Description of project

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

Residential flat buildings - Building1, 8 dwellings, 2 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
101	3	87.6	3.6	0.0	0.0
G02	3	92.1	3.5	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
102	3	88.4	3.6	0.0	0.0
G03	3	89.1	3.9	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
103	3	87.6	3.8	0.0	0.0
G04	2	75.5	3.6	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
104	3	88.5	3.4	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
G01	3	88.2	3.5	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)
Car park area (No. 1)	478.64
Hallway/lobby type (No. 1)	8.72

Common area	Floor area (m²)
Lift car (No. 1)	-

Common area	Floor area (m²)
Ground floor lobby type (No. 1)	26.72

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 (> 4.5 but <= 6 L/min)	4 star	5 star	5 star	no	-	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	central water tank (no. 1)	See central systems	See central systems	-	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	gas instantaneous 6 star	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		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
All dwellings	3-phase airconditioning EER 3.0 - 3.5 (zoned)	3-phase airconditioning EER 3.0 - 3.5 (zoned)	3-phase airconditioning EER 3.0 - 3.5 (zoned)	3-phase airconditioning EER 3.0 - 3.5 (zoned)	0 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes

	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	-	-	-	-	electric cooktop & electric oven	-	yes	3.5 star	-	2.5 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.		✔	

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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)**
101	41.8	19.7
102	19.6	13.0
103	26.7	16.7
104	43.9	17.0
G01	43.6	12.7
G02	34.3	14.3
G03	24.9	28.7
All other dwellings	32.8	19.4

(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	no common facility	no common facility	no common facility	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	10000.0	To collect run-off from at least: - 200.0 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 0.0 square metres of garden/lawn area in the development - 0.0 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 200.0 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Fire sprinkler system (No. 1)	-	-	-

(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
Car park area (No. 1)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	zoned switching with daylight sensor	No
Lift car (No. 1)	-	-	light-emitting diode	connected to lift call button	No
Ground floor lobby type (No. 1)	no mechanical ventilation	-	light-emitting diode	time clocks	No
Hallway/lobby type (No. 1)	no mechanical ventilation	-	light-emitting diode	time clocks	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 3

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	no common facility	no common facility	no common facility	no common laundry facility

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

Central energy systems	Type	Specification
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 9.0 peak kW

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

Thermal Comfort Simulation Assessment

WWW.SENICA.COM.AU
INFO@SENICA.COM.AU
(02) 8006 7784

Senica
consultancy group

ENERGY EFFICIENCY REPORT

Thermal Comfort Simulation Assessment

Site Address

22-24 Angle Street, BALGOWLAH

Lot and DP

6 & 7//9585

Client

Steve Gillespie

Local Government Area

Northern Beaches

Proposed Development

Multi-Unit Building

Commissioned by

Wolski Coppin

Assessment Date

05/02/2023

Reference Number

2302655

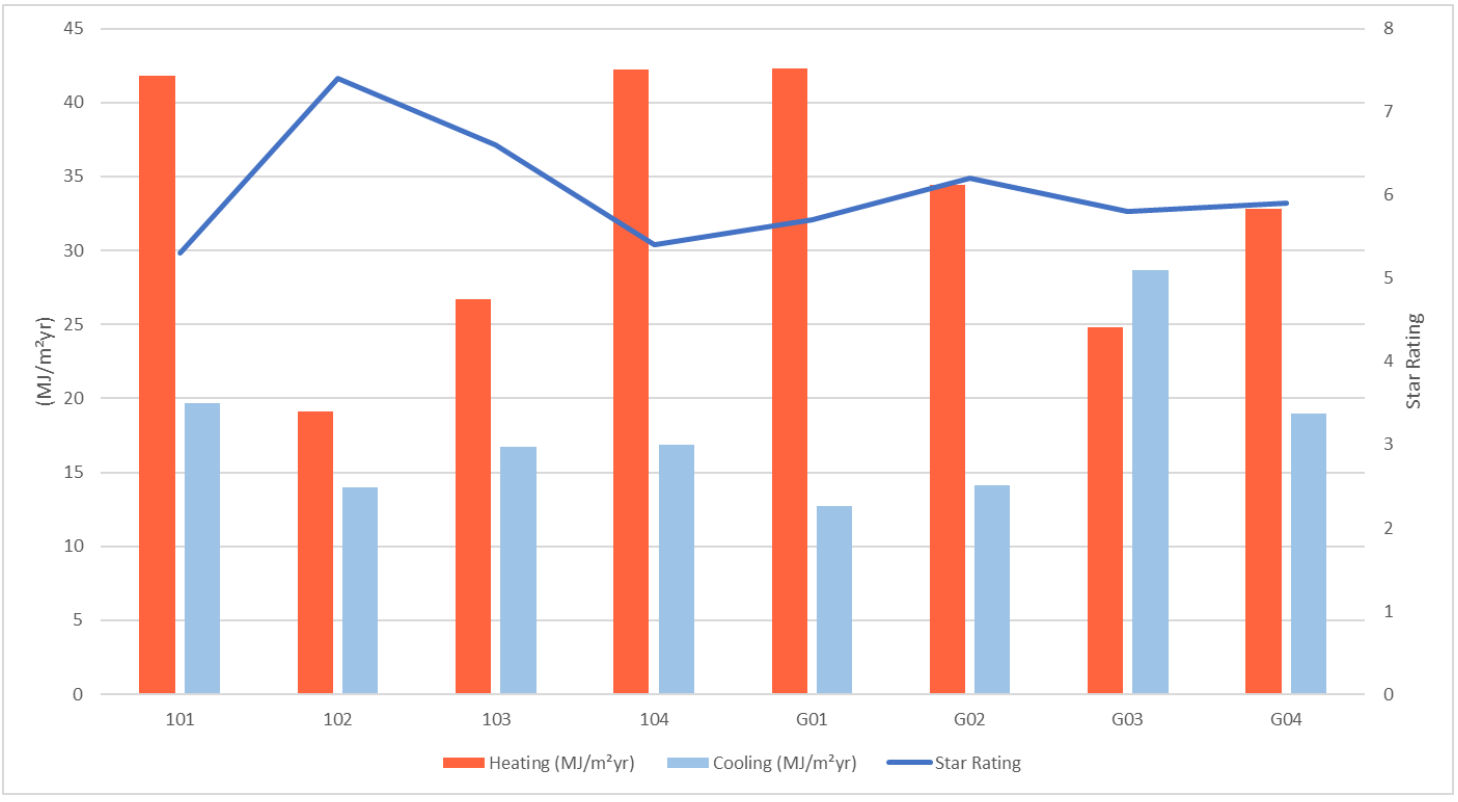
Project Certification Summary

Building and Modelling Software Information

			Building Areas (m²)
Software:	Hero V3.0.1.1		
Chenath Engine:	V3.21	Conditioned	697.0
Site Exposure:	Surburban	Unconditioned	28.9
Orientation:	351	Garage	--
Climate Zone:	56 – Mascot AMO	**TOTAL**	**726.1**

Thermal Comfort Modelling Averaged Results

Target	(MJ/m²/yr)	Result	(MJ/m²/yr)
Heating	40.0	Heating	33.0
Cooling	26.0	Cooling	17.7
TOTAL	**66.0**	**TOTAL**	50.7



Compliance

The above Thermal Performance Assessment information complies with the regulatory and legislative requirements within the State which it is intended.

Qualification Statement

Certificate IV in NatHERS Assessment
Residential Building Thermal Performance Course
Diploma in Building Surveying
Accredited Assessor with Design Matters National

Building Specifications

These are the specifications upon which the certified NatHERS assessment is based. Any deviation from these specifications will invalidate the NatHERS certificate and therefore voids compliance of the development with the NCC and the NSW BASIX Protocol. In case of any variation from these specifications contact Senica Consultancy Group to obtain updated NatHERS and BASIX certificates and an updated copy of these specifications.

Walls

Description	Construction Type	Insulation	Colour (Solar Absorptance)
External Walls	Hebel Panel with reflective Sarking	R2.5	Light (SA - <0.475)
External Walls	Brick Veneer with reflective sarking	R2.5	Light (SA - <0.475)
External Walls	FC Sheeting with reflective Sarking	R2.5	Light (SA - <0.475)
External Walls	Weatherboard with reflective sarking	R2.5	Light (SA - <0.475)

Windows and Skylights

Description	Glazing	Frame	U_w-Value	SHGC	Frame Colour (Solar Absorptance)
ALM-001-01 A	Single Clear	Aluminium	6.7	0.57	Medium (SA – 0.475 - <0.700)
ALM-002-01 A	Single Clear	Aluminium	6.7	0.70	Medium (SA – 0.475 - <0.700)
ALM-003-01 A	Double Clear	Aluminium	4.8	0.51	Medium (SA – 0.475 - <0.700)
ALM-004-01 A	Double Clear	Aluminium	4.8	0.59	Medium (SA – 0.475 - <0.700)
ALM-002-02 A	Single Low e	Aluminium	6.6	0.49	Medium (SA – 0.475 - <0.700)
ALM-002-04 A	Single Low e	Aluminium	5.6	0.41	Medium (SA – 0.475 - <0.700)

Window and skylight U and SHGC values, if specified, are according to NFRC. Alternate products or specifications may be used if their U value is lower, and the SHGC value is less than 10% higher or lower, than the U and SHGC values of the product specified above. Note that the NatHERS Technical Notes 2019 allows only a 5% tolerance for the SHGC value however this is overridden by BASIX Thermal Comfort Protocol 2017 to be 10%.

Floors

Description	Construction Type	Insulation	Floor Covering
Over Carparking	Suspended Concrete Slab	19mm EPS and Sarking	Beds-Carpet, Tile-Remainder
Remaining	Suspended Concrete Slab	Nil	Beds-Carpet, Tile-Remainder

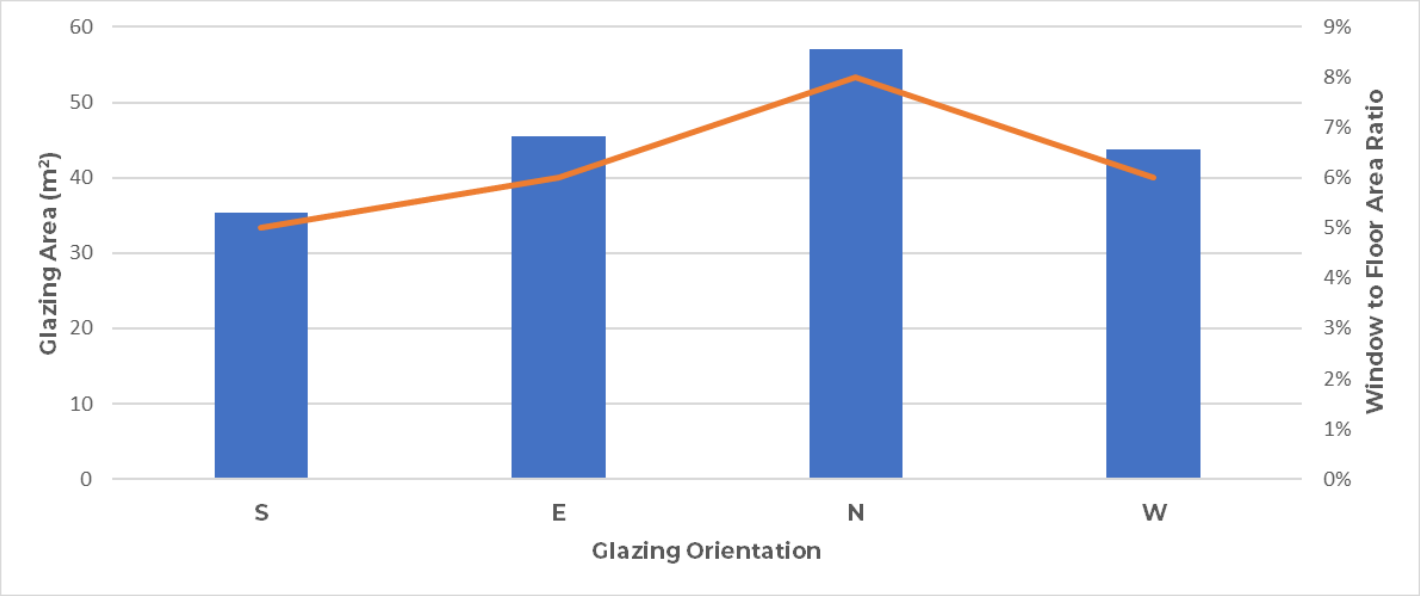
Ceilings and Roof

Description	Construction type	Roof Insulation	Ceiling Insulation	Colour (Solar Absorptance)
Roof	Concrete Slab	50mm XPS Insulation	R2.0	Light (SA - <0.475)

Electrical Notes and Ceiling Penetrations

Description	Diameter (mm)	Location	Sealed	Notes
Downlights	100	As per assumption	Yes	IC Rated
Ceiling Fans	1200	Nil	NA	NA
Exhaust Fans	250	As per assumption	Yes	NA
Chimneys	250	Nil	NA	NA

Glazing Areas Orientation



The above chart indicates the orientation of all glazed windows and doors in the external envelope of the proposed dwelling. To improve the thermal performance of the dwelling, we recommend the following:

1. Maximise the unsheltered northern aspect glazing
2. Minimise western facing glazing as much as possible. Total western facing glazing should be less than 5% of the dwelling's total floor area
3. Keep southern facing glazing reasonably small. Total window area should be less than 5% of the dwellings total floor area.
4. Maximise the openable area of southern facing glazing
5. Keep eastern facing glazing to a relatively modest size. Total window area should be less than 8% of the dwelling's total floor area.
6. Keep total glazing area to less than 25% of the total floor area of the dwelling. For low thermal mass buildings this may need to be 20% of the dwelling's total floor area.

Project Certification Summary

Artificial Lighting Calculation Allowances

Internal Area of Dwelling house	726.1	m²	Area Allowance	5.0	W/m²
			Total	3,630.5	Watts
Internal Area of Garage		m²	Area Allowance		W/m²
			Total		Watts
External Living Area	38.5	m²	Area Allowance	4.0	W/m²
			Total	154.0	Watts

Building and Modelling Software Information

Total Insulated Ceiling Area	363.0	m²	0.5% of Insulated Ceiling Area	1.81	m²
Total Penetration Area	0.0	m²			

Clearance required around downlights creates a significant area of uninsulated ceiling, which therefore increases heat loss/gain through the ceiling. Insulation Contact rated downlights help to minimise the area of ceiling penetration and can greatly improve thermal performance of the proposed dwelling house.

NSW NCC Provisions

Building Fabric Thermal Insulation

NSW 3.12.1 Application of NSW Part 3.12.1

a) Compliance with NSW 3.12.1.1 satisfies NSW P2.6.1(a) for thermal insulation and thermal breaks.
b) NSW PART 3.12.1 only applies to thermal insulation in a Class 1 or 10 building where a development consent specifies that the insulation is to be provided as part of the development.
c) In (b), the term development consent has the meaning given by the Environmental Planning and Assessment Act 1979.
d) The Deemed-to-Satisfy Provisions of this Part for thermal breaks apply to all Class 1 buildings and Class 10a buildings with a conditioned space.

NSW 3.12.1.1 Compliance with BCA Provisions

a) Thermal insulation in a building must comply with the national BCA provisions of 3.12.1.1.
b) A thermal break must be provided between the external cladding and framing in accordance with national BCA provisions of—
    i. 3.12.1.2(c) for a metal framed roof; and
    ii. 3.12.1.4(b) for a metal framed wall.
c) Compensation for reduction in ceiling insulation must comply with the national BCA provisions of 3.12.1.2(e).
d) A floor with an in-slab or in-screed heating or cooling system must comply with the national BCA provisions of—
    i. 3.12.1.5(a)(ii), (iii) and (e) for a suspended floor; or
    ii. 3.12.1.5(c), (d) and (e) for a concrete slab-on-ground.

Building Sealing and Services

NSW 3.12.3 Application of NSW Part 3.12.3

a. Compliance with NSW 3.12.3.1 satisfies NSW P2.6.1(b) for building sealing.
b. NSW Part 3.12.3 is not applicable to—
    i. existing buildings being relocated; or
    ii. Class 10a buildings—
        A. without a conditioned space; or
        B. for the accommodation of vehicles; or
    iii. parts of buildings that cannot be fully enclosed; or
    iv. a permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of a gas appliance; or
    v. a building in climate zones 2 and 5 where the only means of air-conditioning is by using an evaporative cooler.

NSW 3.12.3.1 Compliance with BCA Provisions

The sealing of a building must comply with the national BCA provisions 3.12.3.1 to 3.12.3.6.

NSW 3.12.5 Services: Application of NSW Part 3.12.5

a. Compliance with NSW 3.12.5.1 satisfies NSW P2.6.2 for services.
b. NSW Part 3.12.5 is not applicable to existing services associated with existing buildings being relocated.

NSW 3.12.5.1 Compliance with BCA Provisions

Services must comply with the national BCA provisions 3.12.5.0 to 3.12.5.3.

Limitations

This report was prepared for the purposes and exclusive use of the stated client to accompany an application to the relevant Council for the specified development application and is not to be used for any other purpose or by any other person or corporation.

The information contained in this report is based on plans and specifications provided to Senica Consultancy Group. To the best of our knowledge, it does not contain any false, misleading or incomplete information.

Should the plans or specifications be modified in any way, this report and any appurtenant articles are rendered null and void. Modification to the plans and specifications requires an amended report be prepared addressing the relevant changes.

Senica Consultancy Group gives no warranty or assurance and make no representation as to the accuracy of any information or advice contained, or that it is suitable for your intended use.

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Senica Consultancy Group accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may rely on or use this report in contravention of the terms of this clause.

This report is not to be distributed, copied or modified in any way with the intention to disclose to any other party other than those involved in the project's specific approval process.

Nationwide House Energy Rating Scheme — Class 2 Summary
NatHERS Certificate No. #HR-KEGCNI-01

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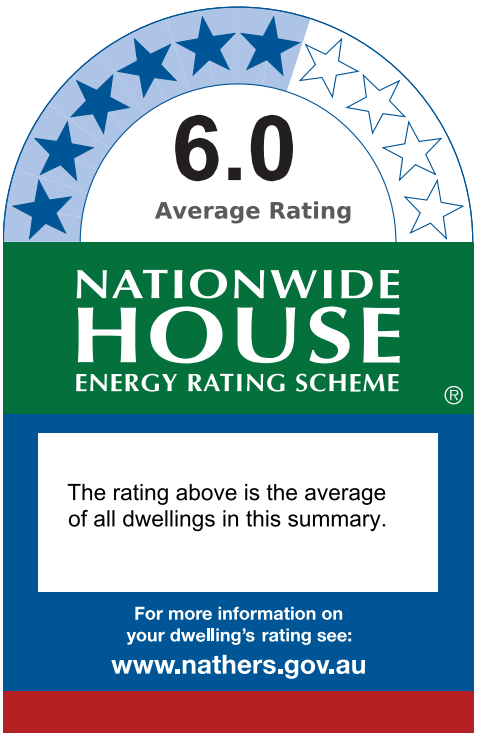


Property

Address 22-24 Angle Street, BALGOWLAH, NSW, 2093

Lot/DP

NatHERS climate zone 56 - Mascot AMO

Accredited assessor

Duncan Hope

Senica Consultancy Group

duncan@senica.com.au

+61 280067784

Accreditation No. DMN/14/1658

Assessor Accrediting Organisation DMN

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-KEGCNI-01 . When using either link, ensure you are visiting http://www.hero-software.com.au

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (MJ/m²)	Cooling load (MJ/m²)	Total load (MJ/m²)	Star rating
HR-N98XWL-01	G01	43.6	12.7	56.3	5.6
HR-E1UFB5-01	G02	34.3	14.3	48.6	6.2
HR-WPHBGV-01	G03	24.9	28.7	53.6	5.8
HR-KFLFYE-01	G04	32.8	19.4	52.2	5.9

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (MJ/m²)	Cooling load (MJ/m²)	Total load (MJ/m²)	Star rating
HR-GFUNRJ-01	101	41.8	19.7	61.5	5.3
HR-FSZZIF-01	102	19.6	13.0	32.6	7.4
HR-NCZ4NI-01	103	26.7	16.7	43.4	6.6
HR-WB8T2Y-01	104	43.9	17.0	60.9	5.3
Average	8x (Total)	33.4	17.7	51.1	6.0

Explanatory Notes

About this report

This summary rating is the average rating of all NCC Class 2 dwellings in a development. The individual dwellings' ratings are a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate the energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances, or energy production of solar panels. For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

Accredited Assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO). AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country.

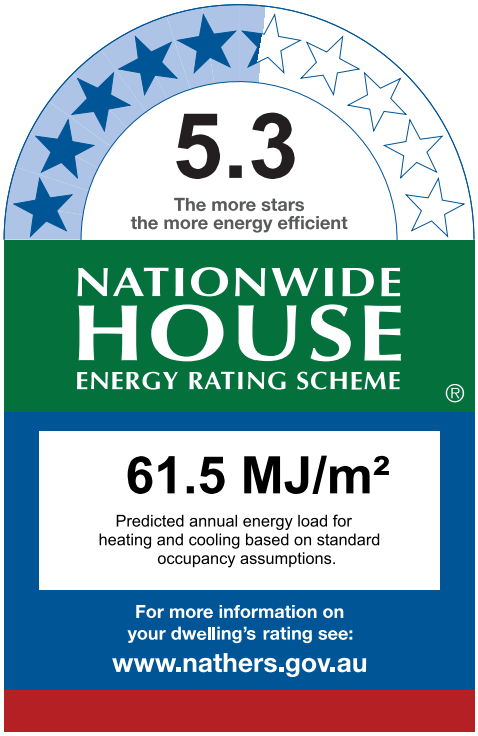
Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content, input and creation of the NatHERS Certificate is by the assessor. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-GFUNRJ-01

Generated on 16 Feb 2023 using Hero 3.0.1



Property

Address	101, 22-24 Angle Street, BALGOWLAH, NSW, 2093
Lot/DP	
NCC Class*	2
Type	New

Plans

Main Plan	Project No. 21701
Prepared by	Wolski Coppin Architecture

Construction and environment

Assessed floor area (m²)*		**Exposure Type**	
Conditioned*	87.6	Suburban	
Unconditioned*	3.6	**NatHERS climate zone**	
Total	91.3	56 - Mascot AMO	
Garage	0.0		

Thermal Performance

Heating	Cooling
41.8	**19.7**
MJ/m²	MJ/m²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-GFUNRJ-01. When using either link, ensure you are visiting http://www.hero-software.com.au

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In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

* Refer to glossary.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-001-01 A	Aluminium A SG Clear	6.70	0.57	0.54	0.60
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-002-01 A	W128	2400	3220	Sliding	55	S	None
Bedroom 02	ALM-001-01 A	W123	1600	1060	Awning	30	W	None

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 03	ALM-001-01 A	W124	2400	1060	Awning	45	N	None
Kitchen/Living	ALM-001-01 A	W125	2400	1060	Awning	45	S	None
Kitchen/Living	ALM-002-01 A	W126	2400	3800	Sliding	47	S	None
Kitchen/Living	ALM-002-01 A	W127	2400	800	Fixed	0	E	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

* Refer to glossary.

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
BV-REFL-CAV	Brick Veneer Stud Wall with Reflective Sarking	0.30	Light	2.50	Yes
FC-REFL-CAV	Fibre-Cement Clad Battened (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes
WB-REFL-CAV	Weatherboard Battened (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	FC-REFL-CAV	2700	3226	S	2657	Yes
Bedroom 02	BV-REFL-CAV	2700	3132	W		Yes
Bedroom 03	FC-REFL-CAV	2700	1275	N		Yes
Bedroom 03	WB-REFL-CAV	2700	2964	W		Yes
Kitchen/Living	BV-REFL-CAV	2700	2243	W		Yes
Kitchen/Living	FC-REFL-CAV	2700	1277	S		Yes
Kitchen/Living	WB-REFL-CAV	2700	2808	WNW		Yes
Kitchen/Living	FC-REFL-CAV	2700	4639	S	1810	Yes
Kitchen/Living	FC-REFL-CAV	2700	847	E	2652	Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
HEBEL-PARTITION1	Hebel Panel Partition wall with Acoustic Insulation	48.8	0.00
INT-PB	Internal Plasterboard Stud Wall	83.2	0.00

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.6	N/A	0.00	Tile
Bedroom 01	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	11.2	N/A	0.00	Carpet
Bedroom 02	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	11.4	N/A	0.00	Carpet
Bedroom 03	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	11.2	N/A	0.00	Carpet

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Ensuite	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.6	N/A	0.00	Tile
Entry Hallway	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	6.7	N/A	0.00	Tile
Kitchen/Living	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	38.7	N/A	0.00	Tile
Laundry	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	1.0	N/A	0.00	Tile
WIR	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.9	N/A	0.00	Tile

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bathroom	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 01	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 02	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 03	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Ensuite	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Entry Hallway	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Kitchen/Living	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Laundry	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
WIR	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Downlight	100	Sealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	100	Sealed
Bedroom 02	2	Downlight	100	Sealed
Bedroom 03	2	Downlight	100	Sealed
Ensuite	1	Downlight	100	Sealed

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Ensuite	1	Exhaust Fan	350	Sealed
Entry Hallway	1	Downlight	100	Sealed
Kitchen/Living	6	Downlight	100	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed
WIR	1	Downlight	100	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	1.79	0.30	Light

* Refer to glossary.

Explanatory Notes

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Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

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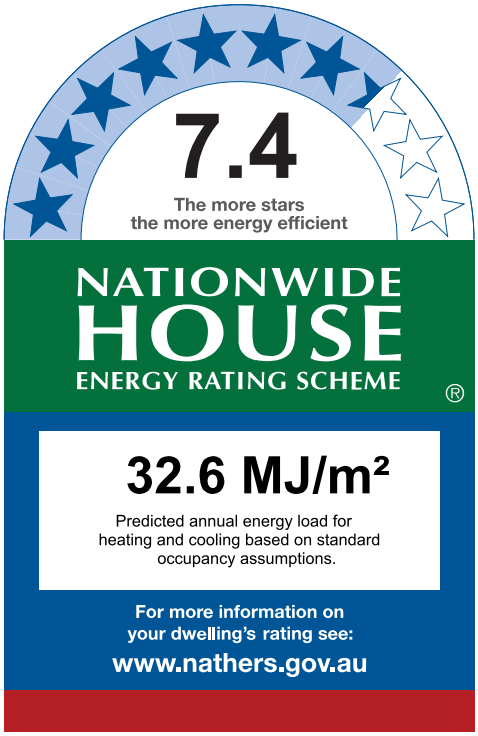
Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

* Refer to glossary.

Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-FSZZIF-01

Generated on 16 Feb 2023 using Hero 3.0.1



Property

Address	102, 22-24 Angle Street, BALGOWLAH, NSW, 2093
Lot/DP	
NCC Class*	2
Type	New

Plans

Main Plan	Project No. 21701
Prepared by	Wolski Coppin Architecture

Construction and environment

Assessed floor area (m²)*		**Exposure Type**	
Conditioned*	88.4	Suburban	
Unconditioned*	3.6	**NatHERS climate zone**	
Total	92.0	56 - Mascot AMO	
Garage	0.0		

Thermal Performance

Heating	Cooling
19.6	**13.0**
MJ/m²	MJ/m²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-FSZZIF-01 . When using either link, ensure you are visiting http://www.hero-software.com.au

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

* Refer to glossary.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-001-01 A	Aluminium A SG Clear	6.70	0.57	0.54	0.60
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-001-01 A	W122	1600	1060	Awning	30	W	None
Bedroom 02	ALM-001-01 A	W120	2400	600	Awning	45	N	None

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 02	ALM-002-01 A	W119	2400	2920	Sliding	60	N	None
Bedroom 03	ALM-001-01 A	W121	2400	600	Awning	45	S	None
Kitchen/Living	ALM-001-01 A	W116	1600	2220	Awning	60	N	None
Kitchen/Living	ALM-001-01 A	W118	2400	830	Awning	45	N	None
Kitchen/Living	ALM-002-01 A	W117-B	2400	2020	Sliding	45	W	None
Kitchen/Living	ALM-001-01 A	W117-A	2400	600	Awning	45	W	None
Kitchen/Living	ALM-001-01 A	W115	2400	830	Awning	45	N	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

* Refer to glossary.

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
BV-REFL-CAV	Brick Veneer Stud Wall with Reflective Sarking	0.30	Light	2.50	Yes
FC-REFL-CAV	Fibre-Cement Clad Battened (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes
HEBEL-75-REFL-CAV11	Hebel Panel (75mm) Clad (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes
WB-REFL-CAV	Weatherboard Battened (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	BV-REFL-CAV	2700	3142	W		Yes
Bedroom 02	WB-REFL-CAV	2700	3027	W		Yes
Bedroom 02	FC-REFL-CAV	2700	729	N	3216	Yes
Bedroom 02	FC-REFL-CAV	2700	3627	N	3216	Yes
Bedroom 03	WB-REFL-CAV	2700	2893	WNW		Yes
Bedroom 03	FC-REFL-CAV	2700	881	S		Yes
Entry	HEBEL-75-REFL-CAV11	2700	102	W		Yes
Entry	HEBEL-75-REFL-CAV11	2700	143	S		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	3502	N	384	Yes
Kitchen/Living	FC-REFL-CAV	2700	933	N	3216	Yes
Kitchen/Living	FC-REFL-CAV	2700	2738	W	5002	Yes
Kitchen/Living	WB-REFL-CAV	2700	862	N	542	Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
HEBEL-PARTITION1	Hebel Panel Partition wall with Acoustic Insulation	57.3	0.00
INT-PB	Internal Plasterboard Stud Wall	67.7	0.00

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.6	N/A	0.00	Tile
Bedroom 01	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	11.7	N/A	0.00	Carpet
Bedroom 02	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	12.7	N/A	0.00	Carpet
Bedroom 03	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	12.1	N/A	0.00	Carpet
Ensuite	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.3	N/A	0.00	Tile
Entry	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	7.5	N/A	0.00	Tile
Kitchen/Living	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	38.6	N/A	0.00	Tile
WIR	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	2.7	N/A	0.00	Carpet

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bathroom	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 01	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 02	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 03	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Ensuite	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Entry	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Kitchen/Living	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
WIR	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Downlight	100	Sealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	100	Sealed
Bedroom 02	2	Downlight	100	Sealed

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bedroom 03	2	Downlight	100	Sealed
Ensuite	1	Exhaust Fan	350	Sealed
Entry	1	Downlight	100	Sealed
Kitchen/Living	6	Downlight	100	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	1.79	0.30	Light

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Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
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National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

* Refer to glossary.

Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-NCZ4NI-01

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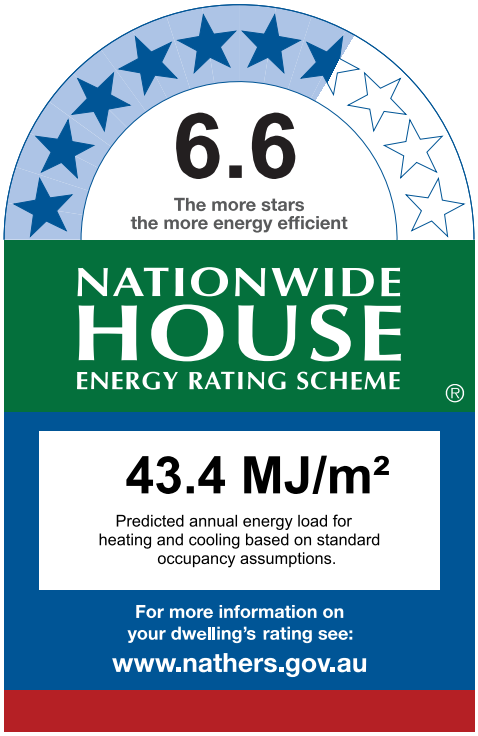

Property

Address	103, 22-24 Angle Street, BALGOWLAH, NSW, 2093
Lot/DP	
NCC Class*	2
Type	New

Plans

Main Plan	Project No. 21701
Prepared by	Wolski Coppin Architecture

Construction and environment

Assessed floor area (m²)*		**Exposure Type**	
Conditioned*	87.6	Suburban	
Unconditioned*	3.8	**NatHERS climate zone**	
Total	91.4	56 - Mascot AMO	
Garage	0.0		

Thermal Performance

Heating	Cooling
26.7	**16.7**
MJ/m²	MJ/m²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-NCZ4NI-01. When using either link, ensure you are visiting http://www.hero-software.com.au

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

* Refer to glossary.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-001-01 A	Aluminium A SG Clear	6.70	0.57	0.54	0.60
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-001-01 A	W109-B	2400	600	Awning	45	E	None
Bedroom 01	ALM-002-01 A	W109-A	2400	1440	Sliding	45	E	None

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 02	ALM-001-01 A	W113	1600	500	Awning	30	N	None
Bedroom 02	ALM-002-01 A	W112	2400	2000	Sliding	45	E	None
Bedroom 03	ALM-001-01 A	W114	2400	1010	Awning	45	N	None
Kitchen/Living	ALM-002-01 A	W111	2400	3320	Sliding	60	N	None
Kitchen/Living	ALM-001-01 A	W110-B	2400	600	Awning	45	E	None
Kitchen/Living	ALM-002-01 A	W110-A	2400	1440	Sliding	45	E	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

* Refer to glossary.

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
HEBEL-75-REFL-CAV11	Hebel Panel (75mm) Clad (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes
WB-REFL-CAV	Weatherboard Battened (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	HEBEL-75-REFL-CAV11	2700	175	ENE		Yes
Bedroom 01	HEBEL-75-REFL-CAV11	2700	515	N		Yes
Bedroom 01	HEBEL-75-REFL-CAV11	2700	2075	E	247	Yes
Bedroom 01	HEBEL-75-REFL-CAV11	2700	966	E		Yes
Bedroom 02	HEBEL-75-REFL-CAV11	2700	2949	N		Yes
Bedroom 02	HEBEL-75-REFL-CAV11	2700	3599	E	3583	Yes
Bedroom 03	WB-REFL-CAV	2700	1208	N		Yes
Bedroom 03	WB-REFL-CAV	2700	256	W		Yes
Bedroom 03	HEBEL-75-REFL-CAV11	2700	1879	N		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	3501	N	3751	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	417	E		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	632	N		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	2190	E	220	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	1510	E		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	112	W		Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
HEBEL-PARTITION1	Hebel Panel Partition wall with Acoustic Insulation	64.3	0.00
INT-PB	Internal Plasterboard Stud Wall	72.5	0.00

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.8	N/A	0.00	Tile
Bedroom 01	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	11.7	N/A	0.00	Carpet
Bedroom 02	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	11.5	N/A	0.00	Carpet
Bedroom 03	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	11.3	N/A	0.00	Carpet
Ensuite	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.3	N/A	0.00	Tile
Hallway	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	4.8	N/A	0.00	Tile
Kitchen/Living	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	42.1	N/A	0.00	Tile
WIR	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.1	N/A	0.00	Carpet

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bathroom	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 01	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 02	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 03	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Ensuite	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Hallway	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Kitchen/Living	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
WIR	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Downlight	100	Sealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	100	Sealed
Bedroom 02	2	Downlight	100	Sealed

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bedroom 03	2	Downlight	100	Sealed
Ensuite	1	Exhaust Fan	350	Sealed
Hallway	1	Downlight	100	Sealed
Kitchen/Living	6	Downlight	100	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	1.79	0.30	Light

* Refer to glossary.

Explanatory Notes

About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

Accredited assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-WB8T2Y-01

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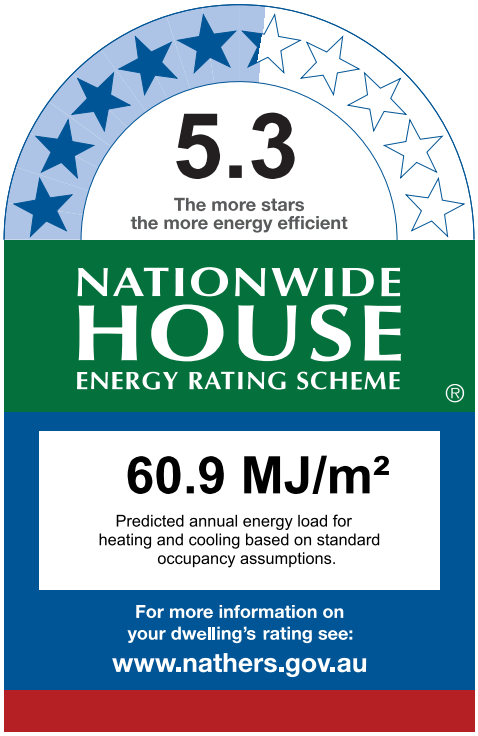

Property

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Type	New

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Assessed floor area (m²)*		**Exposure Type**	
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43.9	**17.0**
MJ/m²	MJ/m²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

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Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

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Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

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Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-001-01 A	Aluminium A SG Clear	6.70	0.57	0.54	0.60
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-001-01 A	W108	2400	730	Awning	22	E	None
Bedroom 01	ALM-002-01 A	W106	2400	2390	Sliding	30	E	None

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-002-01 A	W107	2400	840	Fixed	0	S	None
Bedroom 02	ALM-001-01 A	W102	1600	1650	Awning	60	S	None
Bedroom 03	ALM-001-01 A	W101	1600	800	Awning	30	S	None
Kitchen/Living	ALM-002-01 A	W105	2400	2660	Sliding	60	E	None
Kitchen/Living	ALM-001-01 A	W104	1600	1650	Awning	60	S	None
Kitchen/Living	ALM-002-01 A	W103-B	2400	1840	Sliding	45	S	None
Kitchen/Living	ALM-001-01 A	W103-A	2400	600	Awning	45	S	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

* Refer to glossary.

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
BV-REFL-CAV	Brick Veneer Stud Wall with Reflective Sarking	0.30	Light	2.50	Yes
CONC-400-EXP	Precast 400mm Concrete - Exposed	0.30	Light	0.00	No
HEBEL-75-REFL-CAV11	Hebel Panel (75mm) Clad (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes
WB-REFL-CAV	Weatherboard Battened (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	HEBEL-75-REFL-CAV11	2700	762	E	596	Yes
Bedroom 01	HEBEL-75-REFL-CAV11	2700	2393	E	2177	Yes
Bedroom 01	HEBEL-75-REFL-CAV11	2700	861	S	4185	Yes
Bedroom 02	HEBEL-75-REFL-CAV11	2700	1345	SSE		Yes
Bedroom 02	HEBEL-75-REFL-CAV11	2700	1809	S		Yes
Bedroom 02	HEBEL-75-REFL-CAV11	2700	1394	E	2629	Yes
Bedroom 02	HEBEL-75-REFL-CAV11	2700	1063	E	2629	Yes
Bedroom 03	WB-REFL-CAV	2700	1989	S		Yes
Bedroom 03	BV-REFL-CAV	2700	814	E		Yes
Bedroom 03	CONC-400-EXP	2700	413	SSE		Yes
Bedroom 03	BV-REFL-CAV	2700	784	SSE		Yes
Bedroom 03	CONC-400-EXP	2700	429	E		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	2799	E	2177	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	319	SSE		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	891	E		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	1676	S	73	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	1464	SSE		Yes

* Refer to glossary.

Kitchen/Living	HEBEL-75-REFL-CAV11	2700	2607	S	811	Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
HEBEL-PARTITION1	Hebel Panel Partition wall with Acoustic Insulation	64.8	0.00
INT-PB	Internal Plasterboard Stud Wall	68.8	0.00

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.4	N/A	0.00	Tile
Bedroom 01	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	10.9	N/A	0.00	Carpet
Bedroom 02	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	12.7	N/A	0.00	Carpet
Bedroom 03	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	12.5	N/A	0.00	Carpet
Ensuite	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.1	N/A	0.00	Tile
Entry	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	8.1	N/A	0.00	Tile
Kitchen/Living	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	38.0	N/A	0.00	Tile
WIR	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	3.3	N/A	0.00	Carpet

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bathroom	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 01	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 02	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Bedroom 03	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Ensuite	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Entry	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Kitchen/Living	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

* Refer to glossary.

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
WIR	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	100	Sealed
Bedroom 02	2	Downlight	100	Sealed
Bedroom 03	2	Downlight	100	Sealed
Ensuite	1	Exhaust Fan	350	Sealed
Entry	1	Downlight	100	Sealed
Kitchen/Living	5	Downlight	100	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	1.79	0.30	Light

* Refer to glossary.

Explanatory Notes

About this report

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Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

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Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

* Refer to glossary.

Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-N98XWL-01

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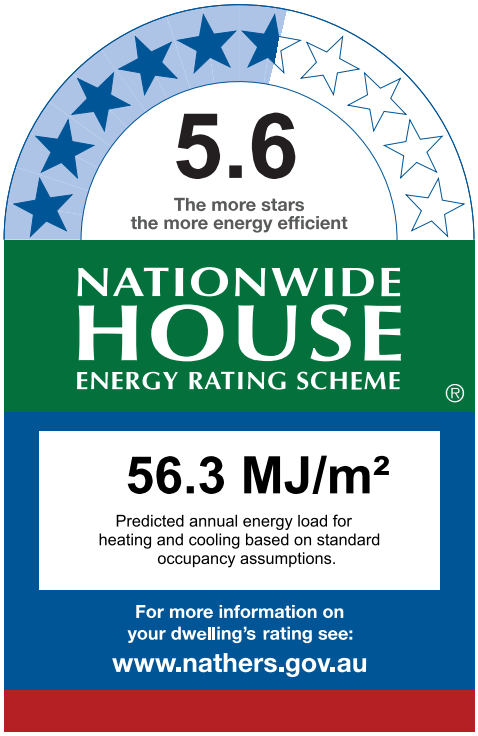

Property

Address	G01, 22-24 Angle Street, BALGOWLAH, NSW, 2093
Lot/DP	
NCC Class*	2
Type	New

Plans

Main Plan	Project No. 21701
Prepared by	Wolski Coppin Architecture

Construction and environment

Assessed floor area (m²)*		**Exposure Type**	
Conditioned*	88.2	Suburban	
Unconditioned*	3.5	**NatHERS climate zone**	
Total	91.7	56 - Mascot AMO	
Garage	0.0		

Thermal Performance

Heating	Cooling
43.6	**12.7**
MJ/m²	MJ/m²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-N98XWL-01. When using either link, ensure you are visiting http://www.hero-software.com.au

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

* Refer to glossary.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-003-01 A	Aluminium A DG Air Fill Clear-Clear	4.80	0.51	0.48	0.54
ALM-004-01 A	Aluminium B DG Air Fill Clear-Clear	4.80	0.59	0.56	0.62

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-004-01 A	WG26	2400	2100	Sliding	45	W	None
Bedroom 02	ALM-004-01 A	WG27	2400	2100	Sliding	45	W	None

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 03	ALM-004-01 A	WG33	2400	1500	Sliding	45	SSE	None
Kitchen/Living	ALM-003-01 A	WG29	2400	1070	Awning	45	W	None
Kitchen/Living	ALM-004-01 A	WG28	2400	2000	Sliding	45	W	None
Kitchen/Living	ALM-003-01 A	WG32	2400	1000	Casement	90	SSE	None
Kitchen/Living	ALM-004-01 A	WG31	2400	2100	Sliding	45	SSE	None
Kitchen/Living	ALM-004-01 A	WG30	2400	2370	Sliding	45	SW	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

* Refer to glossary.

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
BV-REFL-CAV	Brick Veneer Stud Wall with Reflective Sarking	0.30	Light	2.50	Yes
CONC-400-EXP	Precast 400mm Concrete - Exposed	0.30	Light	0.00	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	BV-REFL-CAV	2700	3132	W	1374	Yes
Bedroom 02	BV-REFL-CAV	2700	3065	W	921	Yes
Bedroom 03	CONC-400-EXP	2700	453	SSE		Yes
Bedroom 03	BV-REFL-CAV	2700	1638	E	1811	Yes
Bedroom 03	BV-REFL-CAV	2700	1709	SSE		Yes
Bedroom 03	BV-REFL-CAV	2700	213	SSE		Yes
Bedroom 03	CONC-400-EXP	2700	439	E	1681	Yes
Kitchen/Living	BV-REFL-CAV	2700	4775	W	1357	Yes
Kitchen/Living	BV-REFL-CAV	2700	5756	SSE		Yes
Kitchen/Living	BV-REFL-CAV	2700	2399	SW	398	Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
HEBEL-PARTITION1	Hebel Panel Partition wall with Acoustic Insulation	41.6	0.00
INT-PB	Internal Plasterboard Stud Wall	79.5	0.00

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.5	N/A	1.06	Tile
Bedroom 01	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	12.1	N/A	1.06	Carpet
Bedroom 02	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	12.2	N/A	1.06	Carpet
Bedroom 03	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	12.0	N/A	1.06	Carpet

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Ensuite	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	4.3	N/A	1.06	Tile
Entry/Hallway	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	11.9	N/A	1.06	Timber
Kitchen/Living	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	31.9	N/A	1.06	Timber
WIR	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.7	N/A	1.06	Carpet

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bedroom 03	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Entry/Hallway	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Kitchen/Living	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	100	Sealed
Bedroom 02	2	Downlight	100	Sealed
Bedroom 03	2	Downlight	100	Sealed
Ensuite	1	Downlight	100	Sealed
Ensuite	1	Exhaust Fan	350	Sealed
Entry/Hallway	2	Downlight	100	Sealed
Kitchen/Living	5	Downlight	100	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed
WIR	1	Downlight	100	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

* Refer to glossary.

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	1.79	0.30	Light

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Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-E1UFB5-01

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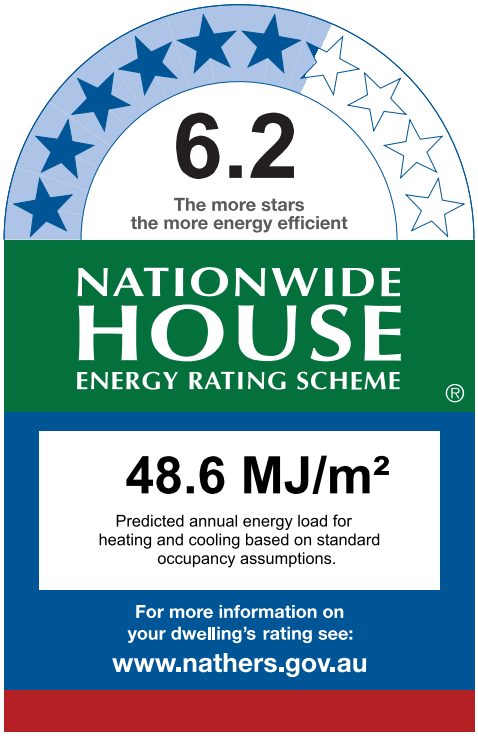

Property

Address	G02, 22-24 Angle Street, BALGOWLAH, NSW, 2093
Lot/DP	
NCC Class*	2
Type	New

Plans

Main Plan	Project No. 21701
Prepared by	Wolski Coppin Architecture

Construction and environment

Assessed floor area (m²)*		**Exposure Type**	
Conditioned*	92.1	Suburban	
Unconditioned*	3.5	**NatHERS climate zone**	
Total	95.6	56 - Mascot AMO	
Garage	0.0		

Thermal Performance

Heating	Cooling
34.3	**14.3**
MJ/m²	MJ/m²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-E1UFB5-01. When using either link, ensure you are visiting http://www.hero-software.com.au

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

* Refer to glossary.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-001-01 A	Aluminium A SG Clear	6.70	0.57	0.54	0.60
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-002-01 A	WG24	2400	1500	Sliding	45	W	None
Bedroom 01	ALM-001-01 A	WG25	2400	740	Awning	45	W	None

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 02	ALM-002-01 A	WG23	2400	2100	Sliding	45	W	None
Bedroom 03	ALM-002-01 A	WG22	2400	2100	Sliding	45	W	None
Kitchen/Living	ALM-001-01 A	WG19	700	600	Awning	90	W	None
Kitchen/Living	ALM-001-01 A	WG20	700	600	Awning	90	W	None
Kitchen/Living	ALM-001-01 A	WG21	700	600	Awning	90	W	None
Kitchen/Living	ALM-002-01 A	WG18	2400	2600	Sliding	45	N	None
Kitchen/Living	ALM-002-01 A	WG17	2400	2850	Sliding	45	N	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

* Refer to glossary.

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
BV-REFL-CAV	Brick Veneer Stud Wall with Reflective Sarking	0.30	Light	2.50	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	BV-REFL-CAV	2700	3113	W	1379	Yes
Bedroom 02	BV-REFL-CAV	2700	3044	W	1414	Yes
Bedroom 03	BV-REFL-CAV	2700	3091	W	1392	Yes
Kitchen/Living	BV-REFL-CAV	2700	3543	W	578	Yes
Kitchen/Living	BV-REFL-CAV	2700	229	N	1960	Yes
Kitchen/Living	BV-REFL-CAV	2700	6358	N	1959	Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
HEBEL-PARTITION1	Hebel Panel Partition wall with Acoustic Insulation	58.9	0.00
INT-PB	Internal Plasterboard Stud Wall	80.4	0.00

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.5	N/A	0.00	Tile
Bedroom 01	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	12.4	N/A	0.00	Carpet
Bedroom 02	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	11.9	N/A	0.00	Carpet
Bedroom 03	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	10.8	N/A	0.00	Carpet
Ensuite	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	4.5	N/A	0.00	Tile
Entry Hallway	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	10.8	N/A	0.00	Tile

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	38.0	N/A	0.00	Tile
WIR	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.7	N/A	0.00	Carpet

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Kitchen/Living	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	100	Sealed
Bedroom 02	2	Downlight	100	Sealed
Bedroom 03	2	Downlight	100	Sealed
Ensuite	1	Downlight	100	Sealed
Ensuite	1	Exhaust Fan	350	Sealed
Entry Hallway	2	Downlight	100	Sealed
Kitchen/Living	5	Downlight	100	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed
WIR	1	Downlight	100	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	1.79	0.30	Light

* Refer to glossary.

Explanatory Notes

About this report

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Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

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AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

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Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-WPHBGV-01

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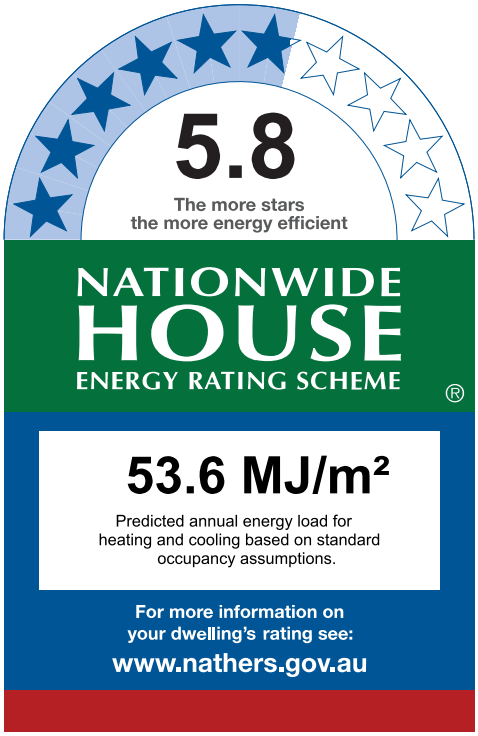

Property

Address	G03, 22-24 Angle Street, BALGOWLAH, NSW, 2093
Lot/DP	
NCC Class*	2
Type	New

Plans

Main Plan	Project No. 21701
Prepared by	Wolski Coppin Architecture

Construction and environment

Assessed floor area (m²)*		**Exposure Type**	
Conditioned*	89.1	Suburban	
Unconditioned*	3.9	**NatHERS climate zone**	
Total	93.0	56 - Mascot AMO	
Garage	0.0		

Thermal Performance

Heating	Cooling
24.9	**28.7**
MJ/m²	MJ/m²

About the rating

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Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

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Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

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Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

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Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

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Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-001-01 A	Aluminium A SG Clear	6.70	0.57	0.54	0.60
ALM-001-04 A	Aluminium A SG Low Solar Gain Low-E	5.60	0.36	0.34	0.38
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73
ALM-002-02 A	Aluminium B SG Tint	6.60	0.49	0.47	0.51
ALM-002-04 A	Aluminium B SG Low Solar Gain Low-E	5.60	0.41	0.39	0.43

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-002-01 A	WG16	900	2080	Sliding	45	N	None
Bedroom 02	ALM-002-02 A	WG08	2400	2100	Sliding	45	E	None
Bedroom 03	ALM-002-04 A	WG09	2400	2100	Sliding	45	E	None
Kitchen/Living	ALM-002-01 A	WG15	2400	2000	Sliding	45	N	None
Kitchen/Living	ALM-002-01 A	WG14	2400	2000	Sliding	45	N	None
Kitchen/Living	ALM-001-01 A	WG13	1500	600	Awning	45	N	None
Kitchen/Living	ALM-001-01 A	WG12	1500	600	Awning	45	N	None
Kitchen/Living	ALM-001-01 A	WG11	1500	600	Awning	45	N	None
Kitchen/Living	ALM-001-04 A	WG10	2400	900	Awning	45	E	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

* Refer to glossary.

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
BV-REFL-CAV	Brick Veneer Stud Wall with Reflective Sarking	0.30	Light	2.50	Yes
FC-REFL-CAV	Fibre-Cement Clad Battened (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes
HEBEL-75-REFL-CAV11	Hebel Panel (75mm) Clad (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	HEBEL-75-REFL-CAV11	2700	456	N	1969	Yes
Bedroom 01	FC-REFL-CAV	2700	198	WNW	1245	Yes
Bedroom 01	BV-REFL-CAV	2700	1231	N	1980	Yes
Bedroom 01	FC-REFL-CAV	2700	2229	N	2172	Yes
Bedroom 02	HEBEL-75-REFL-CAV11	2700	3126	E	247	Yes
Bedroom 03	HEBEL-75-REFL-CAV11	2700	3128	E	291	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	7062	N	1858	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	2542	E		Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
HEBEL-PARTITION1	Hebel Panel Partition wall with Acoustic Insulation	54.2	0.00
INT-PB	Internal Plasterboard Stud Wall	79.2	0.00

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.9	N/A	0.00	Tile
Bedroom 01	SUSP-CONC-200: Suspended Concrete Slab Floor (200mm)	15.8	N/A	0.00	Carpet

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 02	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	12.3	N/A	0.00	Carpet
Bedroom 03	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	11.8	N/A	0.00	Carpet
Ensuite	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.6	N/A	0.00	Tile
Entry Hallway	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	6.9	N/A	0.00	Tile
Hallway	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.0	N/A	0.00	Tile
Kitchen/Living	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	35.8	N/A	0.00	Tile

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bedroom 03	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No
Kitchen/Living	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Downlight	100	Sealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	100	Sealed
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Bedroom 03	2	Downlight	100	Sealed
Ensuite	1	Downlight	100	Sealed
Ensuite	1	Exhaust Fan	350	Sealed
Entry Hallway	1	Downlight	100	Sealed
Kitchen/Living	5	Downlight	100	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

* Refer to glossary.

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	1.79	0.30	Light

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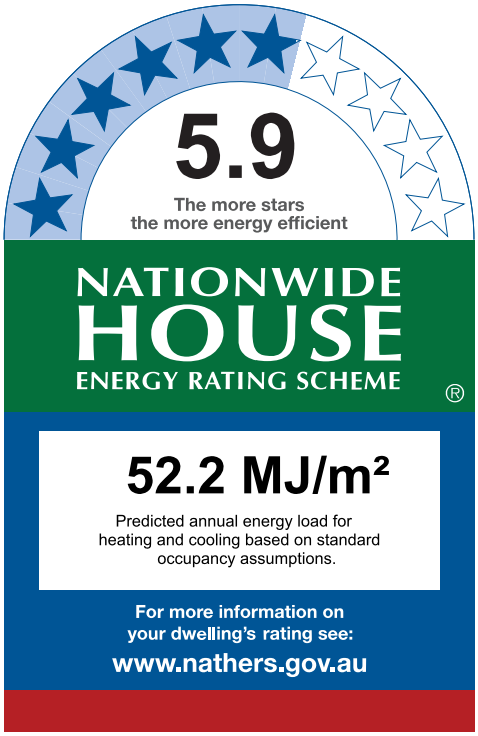
Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

* Refer to glossary.

Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-KFLFYE-01

Generated on 16 Feb 2023 using Hero 3.0.1



Property

Address	G04, 22-24 Angle Street, BALGOWLAH, NSW, 2093
Lot/DP	
NCC Class*	2
Type	New

Plans

Main Plan	Project No. 21701
Prepared by	Wolski Coppin Architecture

Construction and environment

Assessed floor area (m²)*		**Exposure Type**
Conditioned*	75.5	Suburban
Unconditioned*	3.6	**NatHERS climate zone**
Total	79.1	56 - Mascot AMO
Garage	0.0	

Thermal Performance

Heating	**Cooling**
32.8	**19.4**
MJ/m²	MJ/m²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-KFLFYE-01. When using either link, ensure you are visiting http://www.hero-software.com.au

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

* Refer to glossary.

Certificate Check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-001-01 A	Aluminium A SG Clear	6.70	0.57	0.54	0.60
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-001-01 A	WG07	900	1500	Awning	90	E	None
Bedroom 02	ALM-001-01 A	WG06	900	1150	Awning	90	E	None

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Kitchen/Living	ALM-002-01 A	WG04	1250	200	Fixed	0	E	None
Kitchen/Living	ALM-002-01 A	WG05	1250	200	Fixed	0	E	None
Kitchen/Living	ALM-002-01 A	WG01	2400	1900	Sliding	45	SSE	None
Kitchen/Living	ALM-002-01 A	WG02	2400	2700	Sliding	45	SSE	None
Kitchen/Living	ALM-002-01 A	WG03	2400	1900	Sliding	45	SSE	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

* Refer to glossary.

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
HEBEL-75-REFL-CAV11	Hebel Panel (75mm) Clad (Refl Cavity) Stud Wall	0.30	Light	2.50	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	HEBEL-75-REFL-CAV11	2700	558	E	258	Yes
Bedroom 01	HEBEL-75-REFL-CAV11	2700	2275	S	2290	Yes
Bedroom 01	HEBEL-75-REFL-CAV11	2700	1992	E	3311	Yes
Bedroom 02	HEBEL-75-REFL-CAV11	2700	3185	E	3283	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	1838	W	1197	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	1389	S		Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	1940	E	3272	Yes
Kitchen/Living	HEBEL-75-REFL-CAV11	2700	8494	SSE	430	Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
HEBEL-PARTITION1	Hebel Panel Partition wall with Acoustic Insulation	49.9	0.00
INT-PB	Internal Plasterboard Stud Wall	53.8	0.00

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.6	N/A	1.06	Tile
Bedroom 01	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	16.9	N/A	1.06	Carpet
Bedroom 02	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	12.2	N/A	1.06	Carpet
Ensuite	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	3.6	N/A	1.06	Tile
Entry Hallway	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	8.5	N/A	1.06	Tile
Kitchen/Living	SUSP-CONC-400: Suspended Concrete Slab Floor (400mm)	34.3	N/A	1.06	Tile

* Refer to glossary.

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Kitchen/Living	SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	2.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Downlight	100	Sealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	100	Sealed
Bedroom 02	2	Downlight	100	Sealed
Ensuite	1	Downlight	100	Sealed
Ensuite	1	Exhaust Fan	350	Sealed
Entry Hallway	1	Downlight	100	Sealed
Kitchen/Living	5	Downlight	100	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-200-CEIL-01: Concrete Slab (200mm) with Suspended PB Ceiling	1.79	0.30	Light

* Refer to glossary.

Explanatory Notes

About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

Accredited assessors

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PRELIMINARY 3/02/2023

S P 7 5 6 7 8

BRICK HOUSE (TILE ROOF) No 72

No 72B RENDERED 2 STOREY UNITS FLAT ROOF LIVE

No 72A RENDERED 2 STOREY UNITS FLAT ROOF

No 20 3 STOREY BRICK UNIT BLOCK TILE ROOF

CONCRETE AREA

PALING FENCE

TIMBER RET. WALL

L/S AREA

CONCRETE DRIVEWAY

CARPARKING

ADJACENT COMMON OPEN SPACE GARDEN AREA

PAVERS

GRASS

ANGLE ST

TELSTRA PIT

LIGHT POLE

Sub-Station

RETAINING WALL

6M SETBACK

3M SETBACK

SIGHTLINES SHOWN SHADED

G01 3B 95.13 m²

G02 3B 98.99 m²

G03 3B 96.94 m²

G04 2B 82.53 m²

BALC. 18.75 m²

BALC. 22.58 m²

BALC. 16.30 m²

BALC. 24.32 m²

LIFT

DP 654731 LOT 7

Site Area =302.57sqm(By Calc)

joinery seat

spiral staircase opening existing slab to engineers detail

new french doors to existing brickwork

LOUNGE

FFL 57.220

Ground

Ground Fllor

1:200

NOTE:

#HR-KEGCNI-01 16/02/2023
Assessor Duncan Hope
Accreditation No. DMN/14/1658
Address 22-24 Angle Street, BALGOWLAH, NSW, 2093
http://www.hero-software.com.au/pdf/HR-KEGCNI-01

ARCHITECT:

WOLSKI . COPPIN ARCHITECTURE
SUITE 3, LEVEL 1, 507 MILITARY ROAD MOSMAN NSW 2088
T: 9953 8477 E: info@wolskicoppin.com.au
DAVID WOLSKI NSW ARB No. 5297

CLIENT:

Steve Gillespie

PROJECT TITLE:

PROPOSED RESIDENTIAL FLAT BUILDING

22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:

GROUND PLAN

DRAWING No:

DA02

PROJECT No: **21701**

REVISION: **SK 1**

SCALE: 1:200 @ A3

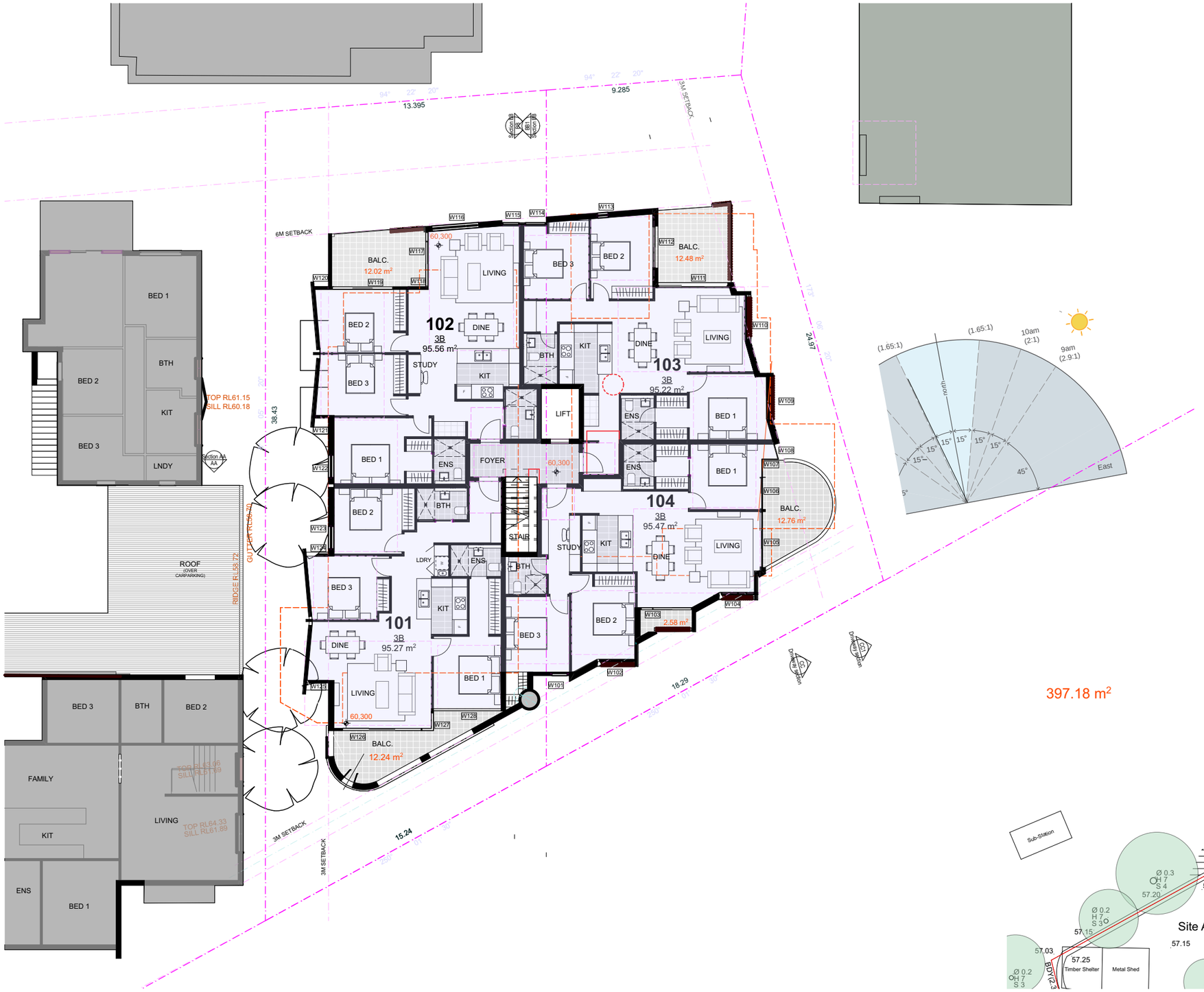
DATE: 3/02/2023

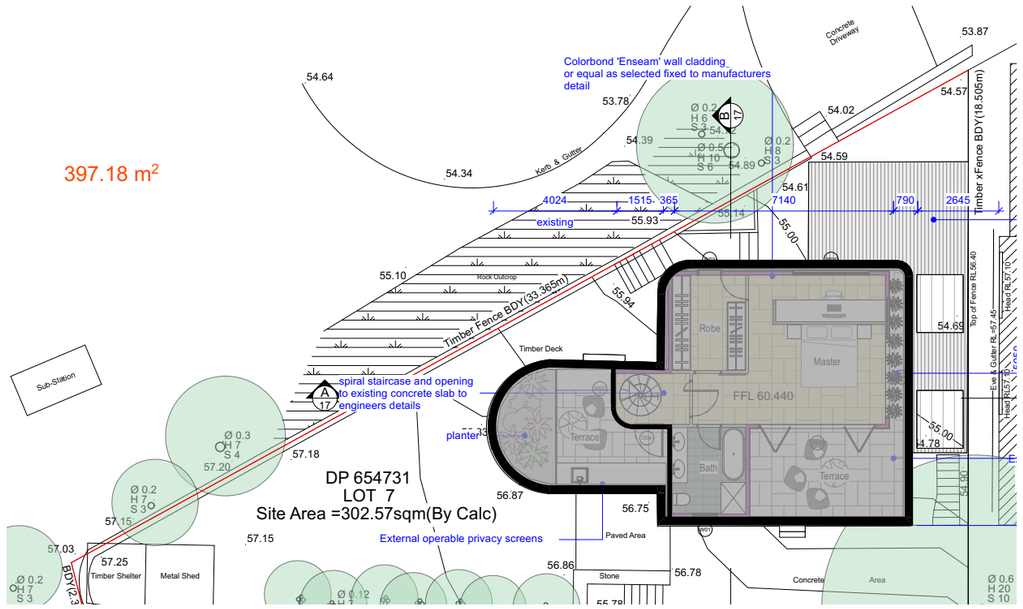
NORTH POINT:

BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

PLOT DATE: 3/02/2023

PRELIMINARY 3/02/2023





Level 1

1:200

N

NOTE:

#HR-KEGCNI-01 16/02/2023
6.0 Average star rating
Assessor Duncan Hope
Accreditation No. DMN/14/1658
Address 22-24 Angle Street, BALGOWLAH, NSW, 2093
http://www.hero-software.com.au/pdf/HR-KEGCNI-01

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SUITE 3, LEVEL 1, 507 MILITARY ROAD MOSMAN NSW 2088
T: 9953 8477 E: info@wolskicoppin.com.au
DAVID WOLSKI NSW ARB No. 5297

CLIENT:
Steve Gillespie

PROJECT TITLE:
PROPOSED RESIDENTIAL FLAT BUILDING
22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:
LEVEL 1 PLAN

DRAWING No:
DA03

PROJECT No:
21701

REVISION:
SK 1

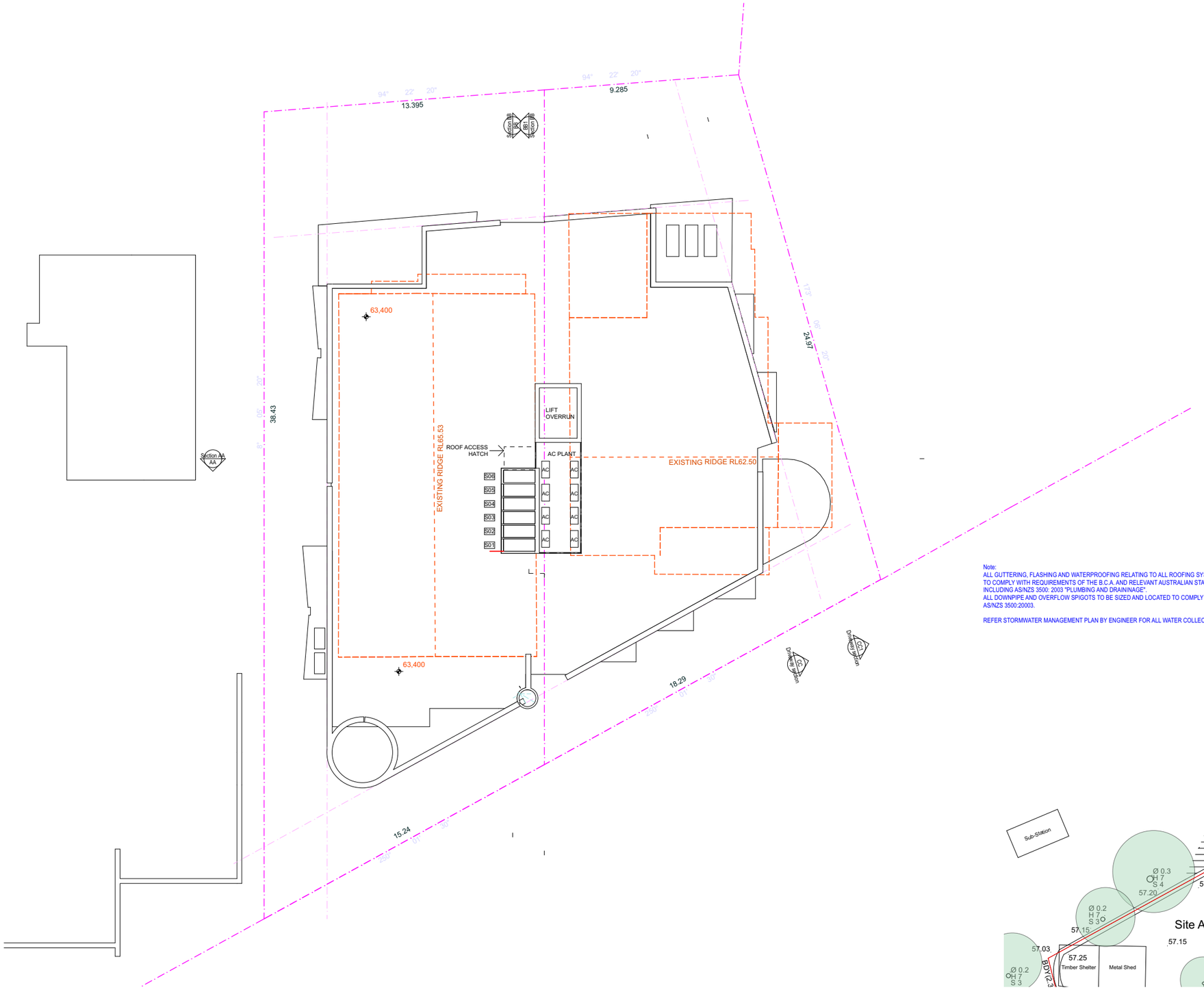
SCALE:
1:200 @ A3

DATE:
3/02/2023

NORTH POINT:

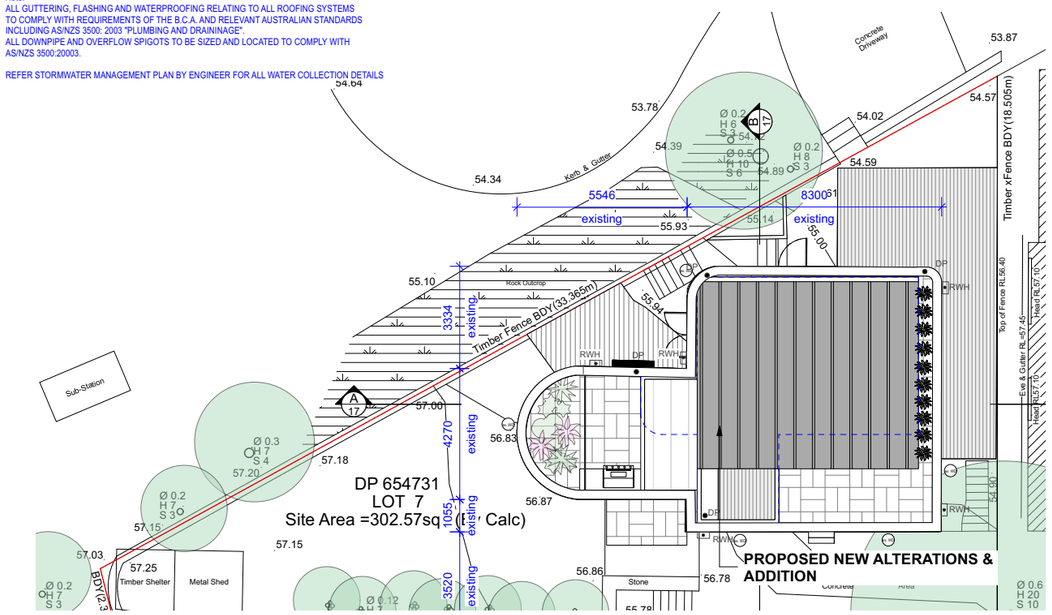
BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

PLOT DATE: 3/02/2023



Note:
ALL GUTTERING, FLASHING AND WATERPROOFING RELATING TO ALL ROOFING SYSTEMS TO COMPLY WITH REQUIREMENTS OF THE B.C.A. AND RELEVANT AUSTRALIAN STANDARDS INCLUDING AS/NZS 3500: 2003 "PLUMBING AND DRAININAGE".
ALL DOWNPIPE AND OVERFLOW SPIGOTS TO BE SIZED AND LOCATED TO COMPLY WITH AS/NZS 3500:20003.

REFER STORMWATER MANAGEMENT PLAN BY ENGINEER FOR ALL WATER COLLECTION DETAILS



Steve Gillespie — Assessment Date: 05/02/2023
22-24 Angle Street, BALGOWLAH — Reference Number: 2302655

Building Specifications

These are the specifications upon which the certified NatHERS assessment is based. Any deviation from these specifications will invalidate the NatHERS certificate and therefore voids compliance of the development with the NCC and the NSW BASIX Protocol. In case of any variation from these specifications contact Senica Consultancy Group to obtain updated NatHERS and BASIX certificates and an updated copy of these specifications.

Walls

Description	Construction Type	Insulation	Colour (Solar Absorptance)
External Walls	Hebel Panel with reflective Sarking	R2.5	Light (SA - <0.475)
External Walls	Brick Veneer with reflective sarking	R2.5	Light (SA - <0.475)
External Walls	FC Sheeting with reflective Sarking	R2.5	Light (SA - <0.475)
External Walls	Weatherboard with reflective sarking	R2.5	Light (SA - <0.475)

Windows and Skylights

Description	Glazing	Frame	U_{w}-Value	SHGC	Frame Colour (Solar Absorptance)
ALM-001-01 A	Single Clear	Aluminium	6.7	0.57	Medium (SA – 0.475 - <0.700)
ALM-002-01 A	Single Clear	Aluminium	6.7	0.70	Medium (SA – 0.475 - <0.700)
ALM-003-01 A	Double Clear	Aluminium	4.8	0.51	Medium (SA – 0.475 - <0.700)
ALM-004-01 A	Double Clear	Aluminium	4.8	0.59	Medium (SA – 0.475 - <0.700)
ALM-002-02 A	Single Low e	Aluminium	6.6	0.49	Medium (SA – 0.475 - <0.700)
ALM-002-04 A	Single Low e	Aluminium	5.6	0.41	Medium (SA – 0.475 - <0.700)

Window and skylight U and SHGC values, if specified, are according to NFRC. Alternate products or specifications may be used if their U value is lower, and the SHGC value is less than 10% higher or lower, than the U and SHGC values of the product specified above. Note that the NatHERS Technical Notes 2019 allows only a 5% tolerance for the SHGC value however this is overridden by BASIX Thermal Comfort Protocol 2017 to be 10%.

Floors

Description	Construction Type	Insulation	Floor Covering
Over Carparking	Suspended Concrete Slab	19mm EPS and Sarking	Beds-Carpet, Tile-Remainder
Remaining	Suspended Concrete Slab	Nil	Beds-Carpet, Tile-Remainder

Ceilings and Roof

Description	Construction type	Roof Insulation	Ceiling Insulation	Colour (Solar Absorptance)
Roof	Concrete Slab	50mm XPS Insulation	R2.0	Light (SA - <0.475)

Electrical Notes and Ceiling Penetrations

Description	Diameter (mm)	Location	Sealed	Notes
Downlights	100	As per assumption	Yes	IC Rated
Ceiling Fans	1200	Nil	NA	NA
Exhaust Fans	250	As per assumption	Yes	NA
Chimneys	250	Nil	NA	NA

Senica consultancy group

PRELIMINARY 3/02/2023

Roof

1:200

N

NOTE:

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CLIENT: Steve Gillespie

PROJECT TITLE:
PROPOSED RESIDENTIAL FLAT BUILDING
22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:
ROOF PLAN

DRAWING No: **DA04**

PROJECT No: 21701

REVISION: SK 1

SCALE: 1:200 @ A3

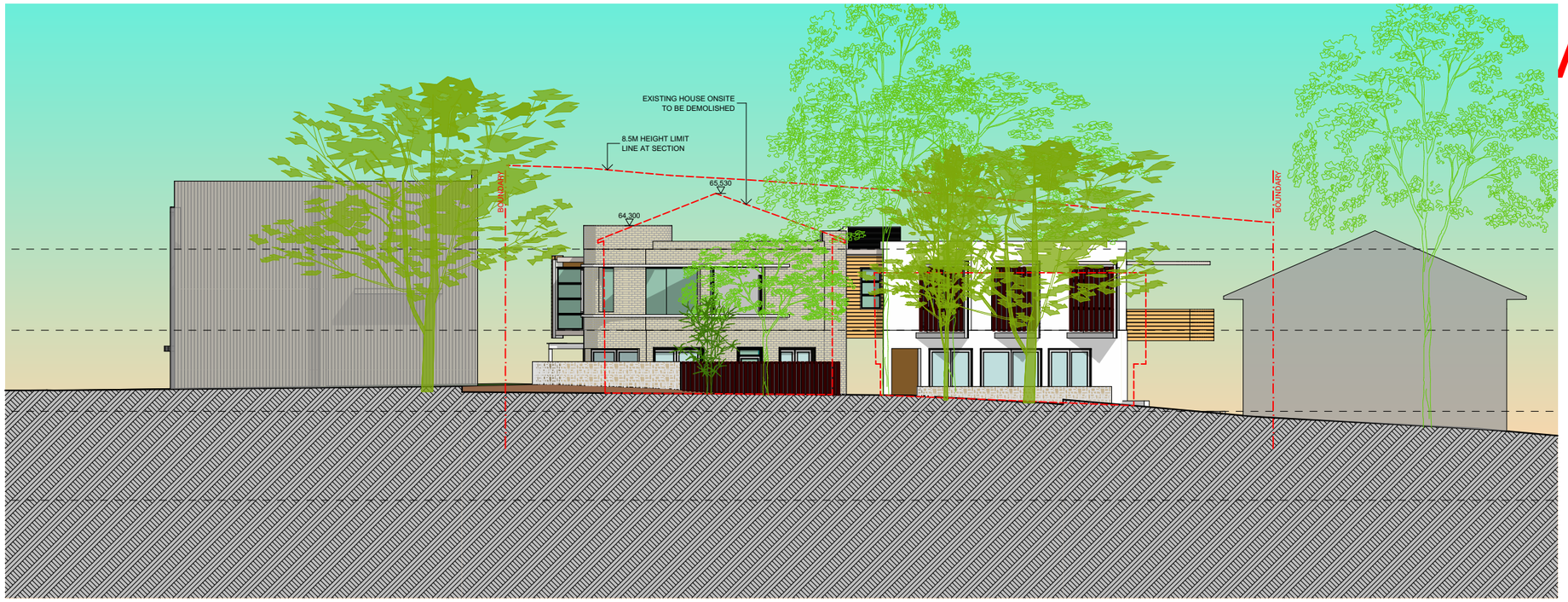
DATE: 3/02/2023

NORTH POINT:

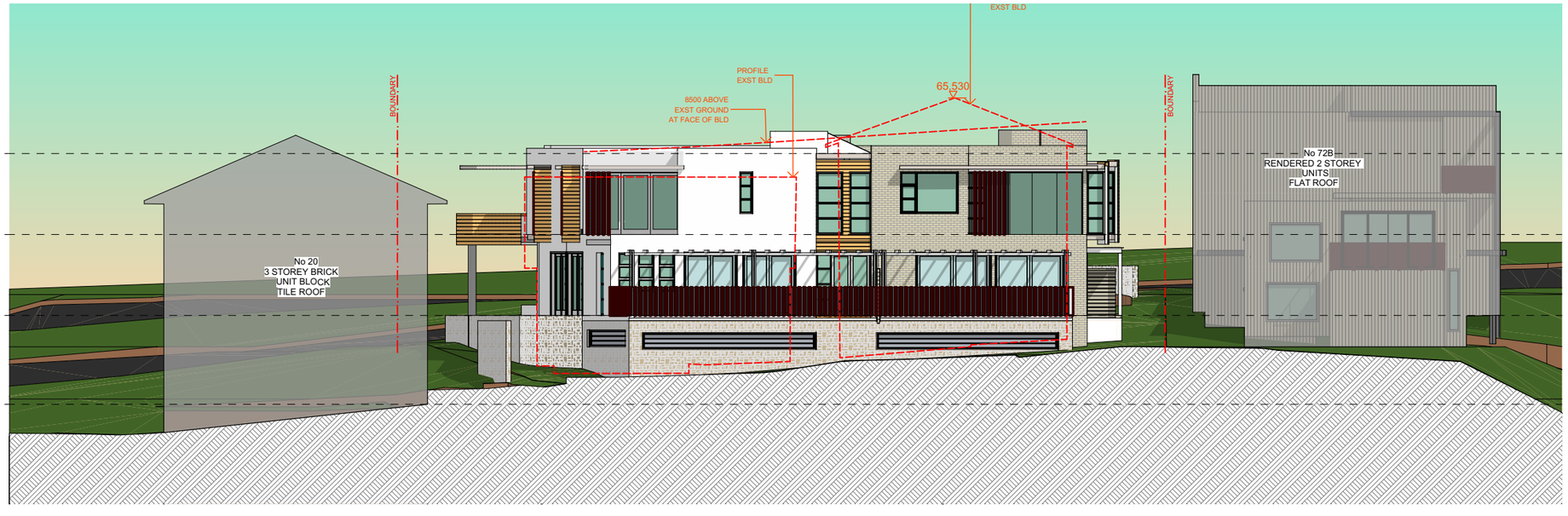
BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

PLOT DATE: 3/02/2023

ARY



SOUTH ELEVATION 1:200



NORTH ELEVATION 1:200

NOTE:

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CLIENT: Steve Gillespie

PROJECT TITLE:
PROPOSED RESIDENTIAL FLAT BUILDING
22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:
ELEVATIONS 1

DRAWING No: **DA05**

PROJECT No: **21701**

REVISION: **SK 1**

SCALE: 1:200 @ A3

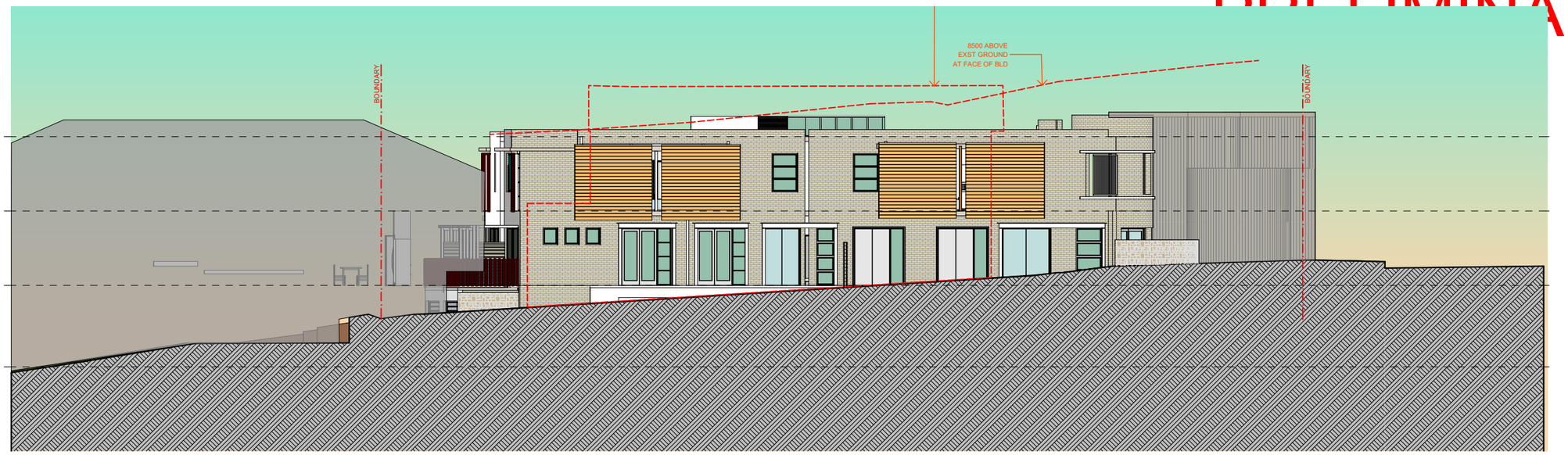
DATE: 1/02/2023

N
NORTH POINT:

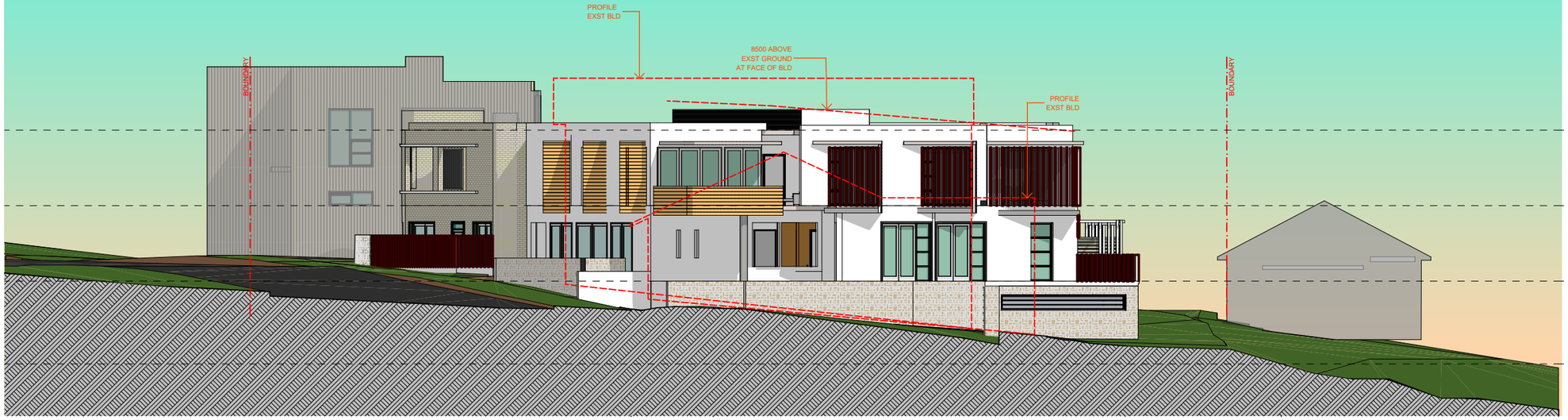
BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

PLOT DATE: 1/02/2023

PRELIMINARY



WEST ELEVATION 1:200



1 EAST ELEVATION 1:200

NOTE:

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PROJECT TITLE:
PROPOSED RESIDENTIAL FLAT BUILDING
22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:
ELEVATIONS 2

DRAWING No:
DA06

PROJECT No: 21701

REVISION: SK 1

SCALE: 1:200 @ A3

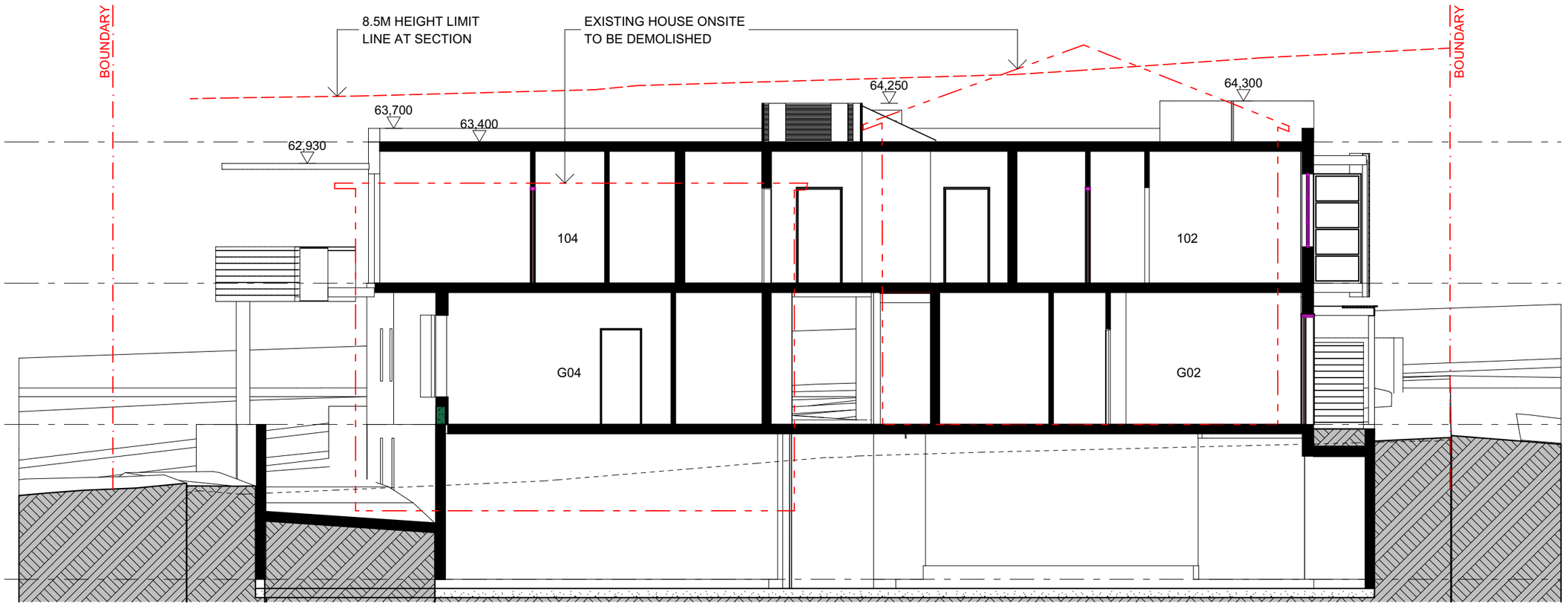
DATE: 1/02/2023

N
NORTH POINT:

BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

PLOT DATE: 1/02/2023

PRELIMINARY



SECTION AA 1:100

NOTE:

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PROJECT TITLE:
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22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:
SECTION AA

DRAWING No:
DA07

PROJECT No:
21701

REVISION:
SK 1

SCALE:
1:100 @ A3

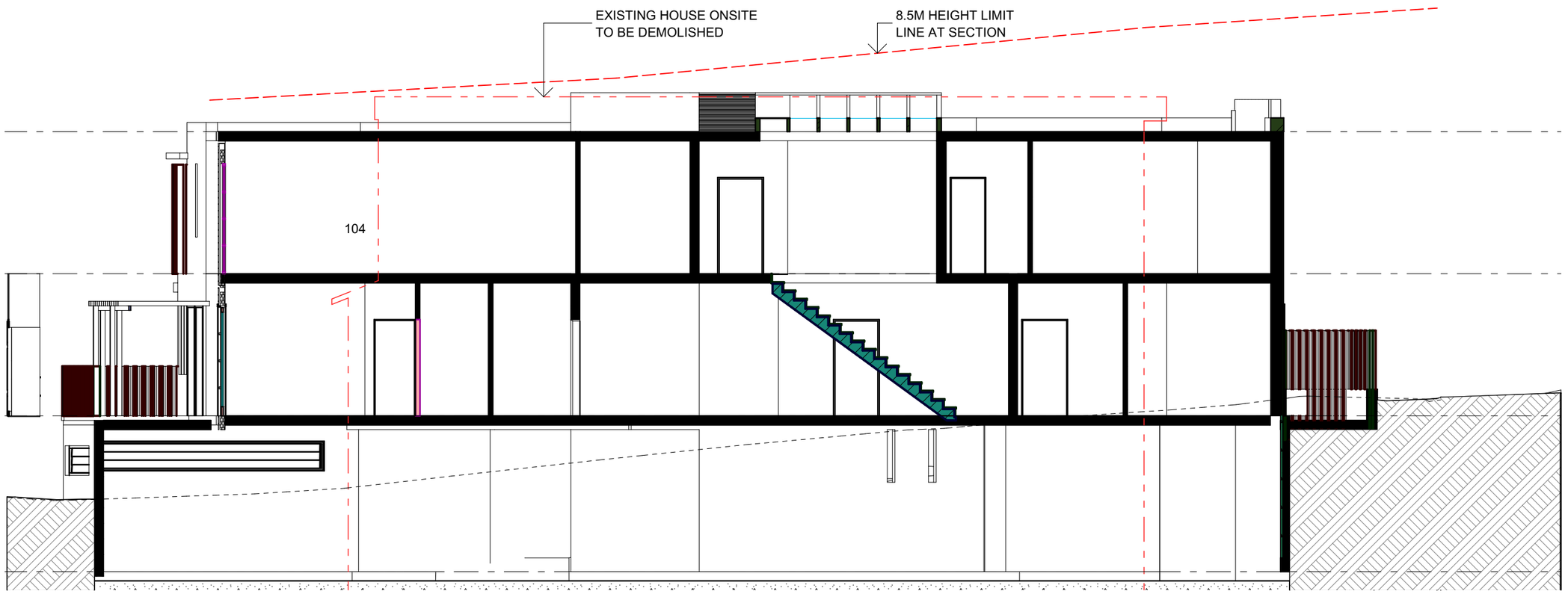
DATE:
1/02/2023

N
NORTH POINT:

BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

PLOT DATE: 1/02/2023

PRELIMINARY



SECTION BB

1:100

NOTE:

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PROJECT TITLE:
PROPOSED RESIDENTIAL FLAT BUILDING
22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:
SECTION BB

DRAWING No:
DA08

PROJECT No:
21701

REVISION:
SK 1

SCALE:
1:100 @ A3

DATE:
1/02/2023

N
NORTH POINT:

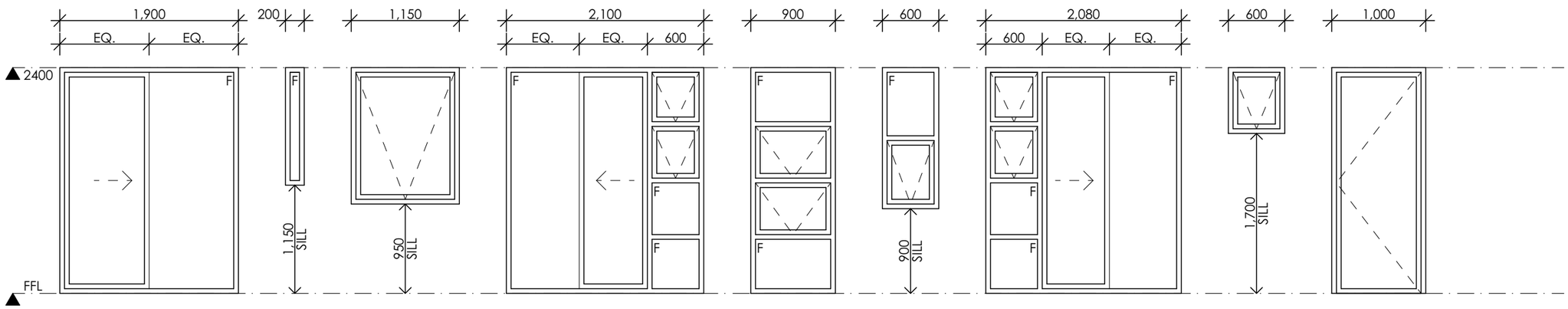
BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

PLOT DATE: 1/02/2023

GROUND FLOOR ENTRY

WGE01

GROUND FLOOR



WG01
WG02 = 2700
WG03
WG14 = 2000
WG15 = 2000
WG17 = 2850
WG18 = 2600
WG24 = 1500
WG28 = 2000
WG30 = 2370
WG31 = 2100
WG33 = 1500

WG04
WG05

WG06
WG07 = 1500

WG08
WG09
WG22
WG23
WG26
WG27

WG10
WG25 = 740
WG29 = 1070

WG11
WG12
WG13

WG16

WG19
WG20
WG21

WG32

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CLIENT:
Steve Gillespie

PROJECT TITLE:
PROPOSED RESIDENTIAL FLAT BUILDING
22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:
WINDOW SCHEDULE 01

DRAWING No:
DA09

PROJECT No:
21701

REVISION:
SK 1

SCALE:
1:50 @ A3

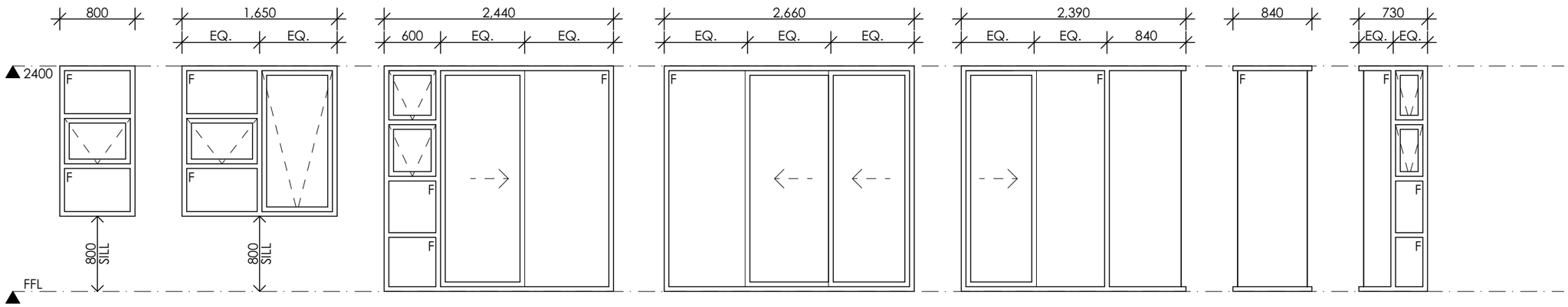
DATE:
3/02/2023

N
NORTH POINT:

BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

PLOT DATE: 3/02/2023

FIRST FLOOR



W101
W113 = 500
W122 = 1060
W123 = 1060

W102
W104
W116 = 2220

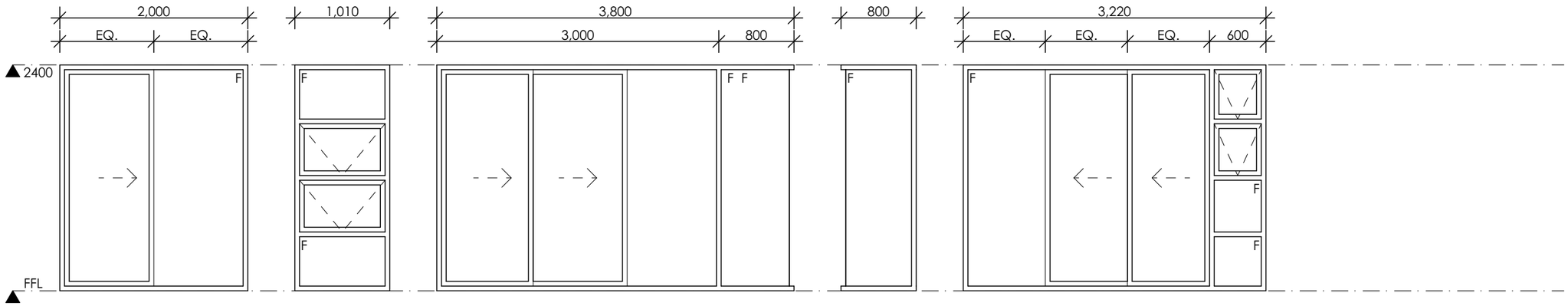
W103
W109 = 2040
W110 = 2040
W117 = 2620

W105
W111 = 3320
W119 = 2920

W106

W107

W108



W112

W114
W115 = 830
W118 = 830
W120 = 600
W121 = 600
W124 = 1060
W125 = 1060

W126

W127

W127

ROOF SKYLIGHT

S01,S02,S03,S04,S05,S06

NOTE:

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PROJECT TITLE:
PROPOSED RESIDENTIAL FLAT BUILDING
22-24 ANGLE STREET, BALGOWLAH

DRAWING TITLE:
WINDOW SCHEDULE 02

DRAWING No:
DA10

PROJECT No: **21701**
REVISION: **SK 1**
SCALE: 1:50 @ A3
DATE: 3/02/2023

BIMcloud: BIMSRV01 - BIMcloud Basic for ARCHICAD 24/22214_22-24 Angle Street Balgowlah

N
NORTH POINT:

PLOT DATE: 3/02/2023

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