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Date of issue: 23 January 2025 Reference No: 16Ely

Client: Rafla Designs

NatHERS and BASIX Certificates

Lot 41 DP2343 No.16 Ely Street, REVESBY NSW 2212

Dear Joseph,

Please find enclosed the approved NatHERS and BASIX certificates for the proposed development.

It is important that the applicant and builder understand that the building works must be done strictly in accordance with the certificate.

Please ensure the BASIX is lodged with the approving authority within 3 months of the issue date.

Regards,

Bianca Alderton

Red Road Engineers

BASIX® Certificate

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

Multi Dwelling

Certificate number: 1780819M

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, 23 January 2025
To be valid, this certificate must be submitted with a development application or lodged with a complying development certificate application within 3 months of the date of issue.

NSW GOVERNMENT

Project summary	
Project name	16ELY
Street address	16 ELY STREET REVESBY 2212
Local Government Area	CANTERBURY-BANKSTOWN
Plan type and plan number	Deposited Plan 2343
Lot No.	41
Section no.	5
No. of residential flat buildings	0
Residential flat buildings: no. of dwellings	0
Multi-dwelling housing: no. of dwellings	4
No. of single dwelling houses	0

Project score			
Water	✔	40	Target 40
Thermal Performance	✔	Pass	Target Pass
Energy	✔	73	Target 72
Materials	✔	-85	Target n/a

Certificate Prepared by
Name / Company Name: Red Road Engineers Pty Ltd
ABN (if applicable): 99600385591

Description of project

Project address	
Project name	16ELY
Street address	16 ELY STREET REVESBY 2212
Local Government Area	CANTERBURY-BANKSTOWN
Plan type and plan number	Deposited Plan 2343
Lot No.	41
Section no.	5

Project type	
No. of residential flat buildings	0
Residential flat buildings: no. of dwellings	0
Multi-dwelling housing: no. of dwellings	4
No. of single dwelling houses	0

Site details	
Site area (m²)	929
Roof area (m²)	344
Non-residential floor area (m²)	0
Residential car spaces	2
Non-residential car spaces	0

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

Assessor details and thermal loads	
Assessor number	101102
Certificate number	587NOXG99K
Climate zone	56

Project score			
Water	✔	40	Target 40
Thermal Performance	✔	Pass	Target Pass
Energy	✔	73	Target 72
Materials	✔	-85	Target n/a

Description of project

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

Multi-dwelling houses

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
GF1	2	53	5	15	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
GF2	2	53	5	15	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
U1	4+	163	27	150	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
U2	4+	163	27	150	0

No common areas specified.

Schedule of BASIX commitments

1. Commitments for multi-dwelling housing

(a) Dwellings

(i) Water

(ii) Energy

(iii) Thermal Performance and Materials

2. Commitments for single dwelling houses

(a) Dwellings

(i) Water

(ii) Energy

(iii) Thermal Performance and Materials

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

(b) Common areas and central systems/facilities

(i) Water

(ii) Energy

Schedule of BASIX commitments

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

1. Commitments for multi-dwelling housing

(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	4 star (> 4.5 but <= 6 L/min)	4 star	6 star	6 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
GF1, GF2	No alternative water supply	-	-	-	-	-	-	-
All other dwellings	Individual water tank (No. 1)	Tank size (min) 2500 liters	To collect run-off from at least: 110 square metres of roof area; 0 square metres of impervious area; 0 square metres of garden and lawn area; and 0 square metres of planter box area.	yes	no	no	no	no

(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.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	
(j) The applicant must install the photovoltaic system specified for the dwelling under the "Photovoltaic system" heading of the "Alternative energy" column of the table below, and connect the system to that dwelling's electrical system.	✔	✔	✔

	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 - 5.5 star	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	natural ventilation only, or no laundry	-

	Cooling		Heating		Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bathrooms or toilets	Main kitchen
GF1, GF2	1-phase airconditioning - non ducted / 5.5 star (average zone)	no individual system	1-phase airconditioning - non ducted / 5.5 star (average zone)	no individual system	1	yes
All other dwellings	1-phase airconditioning - ducted / 5.5 star (average zone)	1-phase airconditioning - ducted / 5.5 star (average zone)	1-phase airconditioning - ducted / 5.5 star (average zone)	1-phase airconditioning - ducted / 5.5 star (average zone)	3	yes

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

	Alternative energy		
Dwelling no.	Photovoltaic system (min rated electrical output in peak kW)	Photovoltaic collector installation	Orientation inputs
All dwellings	-	-	-

(iii) Thermal Performance and Materials	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(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.			

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

	Thermal loads		
Dwelling no.	Area adjusted heating load (in MJ/m²/yr)	Area adjusted cooling load (in MJ/m²/yr)	Area adjusted total load (in MJ/m²/yr)
GF1	11.9	8.8	20.700
GF2	12.2	9.2	21.400
U1	14.2	15.8	30.000
All other dwellings	15.0	14.6	29.600

	Construction of floors and walls				
Dwelling no.	Concrete slab on ground (m²)	Suspended floor with open subfloor (m²)	Suspended floor with enclosed subfloor (m²)	Suspended floor above garage (m²)	Primarily rammed earth or mudbrick walls
GF1, GF2	58	-	-	-	no
All other dwellings	100	-	76	14	no

	Floor types									
	Concrete slab on ground				Suspended floor above enclosed subfloor			Suspended floor above open subfloor		
Dwelling no.	Area (m²)	Insulation	Low emissions option	Dematerialisation	Construction type	Area (m²)	Insulation	Construction type	Area (m²)	Insulation
GF1, GF2	58	-	-	waffle pod slab	-	-	-	-	-	-
All other dwellings	100	-	-	waffle pod slab	particle board, frame: timber - H2 treated softwood	76	-	-	-	-

	Floor types										
	First floor above habitable rooms or mezzanine			Suspended floor above garage			Garage floor				
Dwelling no.	Construction type	Area (m²)	Insulation	Construction type	Area (m²)	Insulation	Construction type	Area (m²)	Insulation	Low emissions option	Dematerialisation
GF1, GF2	-	-	-	-	-	-	-	0	-	-	conventional slab
All other dwellings	-	-	-	particle board, frame: timber - H2 treated softwood	14	-	concrete slab on ground	18	-	-	waffle pod slab

	External walls							
	External wall type 1				External wall type 2			
Dwelling no.	Wall type	Area (m²)	Insulation	Low emissions option	Wall type	Area (m²)	Insulation	Low emissions option
GF1, GF2	brick veneer, frame : timber - H2 treated softwood	79	fibreglass batts or roll	-	-	-	-	-
All other dwellings	brick veneer, frame : timber - H2 treated softwood	288	fibreglass batts or roll	-	-	-	-	-

	External walls							
	External wall type 3				External wall type 4			
Dwelling no.	Wall type	Area (m²)	Insulation	Low emissions option	Wall type	Area (m²)	Insulation	Low emissions option
All dwellings	-	-	-	-	-	-	-	-

	Internal walls								
	Internal walls shared with garage			Internal wall type 1			Internal wall type 2		
Dwelling no.	Wall type	Area (m²)	Insulation	Wall type	Area (m²)	Insulation	Wall type	Area (m²)	Insulation
GF1, GF2	-	-	-	plasterboard, frame: timber - H2 treated softwood	40	-	-	-	-
All other dwellings	-	-	-	plasterboard, frame: timber - H2 treated softwood	160	fibreglass batts or roll	-	-	-

	Ceiling and roof								
	Flat ceiling / pitched roof			Raked ceiling / pitched or skillion roof			Flat ceiling / flat roof		
Dwelling no.	Construction type	Area (m²)	Insulation	Construction type	Area (m²)	Insulation	Construction type	Area (m²)	Insulation
GF1, GF2	framed - concrete tiles, frame: timber - H2 treated softwood	58	Ceiling:fibreglass batts or roll,Roof: foil backed blanket	-	-	Ceiling:,Roof:	-	-	Ceiling:,Roof:
All other dwellings	framed - metal roof, frame: timber - H2 treated softwood	114	Ceiling:fibreglass batts or roll,Roof: foil backed blanket	-	-	Ceiling:,Roof:	-	-	Ceiling:,Roof:

	Glazing type			Frame types				
Dwelling no.	Single glazing (m²)	Double glazing (m²)	Triple glazing (m²)	Aluminium frames (m²)	Timber frames (m²)	uPVC frames (m²)	Steel frames (m²)	Composite frames (m²)
GF1, GF2	11.5	-	-	11.5	-	-	-	-
All other dwellings	6.5	44.5	-	51	-	-	-	-

2. Commitments for single dwelling houses

(a) Dwellings

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

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

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

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

3. 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
Other	-	-

Notes

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

Legend

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

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. 587NOXG99K

Generated on 21 Jan 2025 using FirstRate5: 5.5.5a (3.22)

Property

Address	Unit 1, No.16 Ely Street, Revesby, NSW, 2212
Lot/DP	41/5/2343
NCC Class*	Class 1a
Floor/all Floors Type	New Home

Plans

Main plan	181/25 Iss A DA Sht 1 18.1.25
Prepared by	Rafla Arch

Construction and environment

Assessed floor area [m²]*		**Exposure type**
Conditioned*	163.1	suburban
Unconditioned*	26.8	**NatHERS climate zone**
Total	189.9	56 Mascot AMO
Garage	17.6	

Accredited assessor

Name	Bianca Alderton
Business name	Red Road Engineers
Email	energy@redroadengineers.com.au
Phone	0411067691
Accreditation No.	101102
Assessor Accrediting Organisation	ABSA
Declaration of interest	No

NCC Requirements

NCC provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

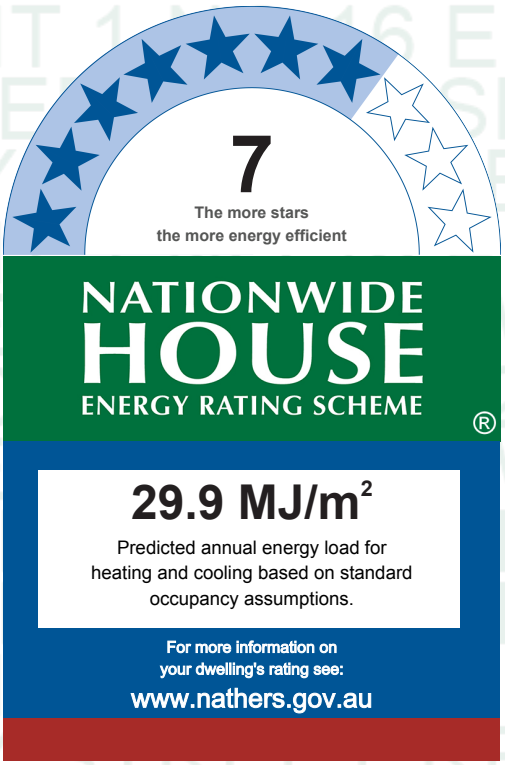
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two.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

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

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

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

Thermal performance star rating



Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	14.1	15.8
Load limits	N/A	N/A

Features determining load limits

Floor type (lowest conditioned area)	N/A
NCC climate zone 1 or 2	N/A
Outdoor living area	N/A
Outdoor living area ceiling fan	N/A

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au/QRCodeLanding?PublicId=587NOXG99K When using either link, ensure you are visiting www.fr5.com.au.

*Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:

- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA – not applicable

Outdoor living area:

- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA – not applicable

Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

Energy use:

No Whole of Home performance assessment conducted for this certificate.

Greenhouse gas emissions:

No Whole of Home performance assessment conducted for this certificate.

Cost:

No Whole of Home performance assessment conducted for this certificate.

Graph key:

*Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐		☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone?	☐	☐	☐	☐	☐

*Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			
Other NCC requirements					

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes

Insulation

Ceiling R4.0

Roof R1.8 Blanket

External Walls R2.5

Internal Walls R2.0

External Walls Medium SA 0.5

Roof SA 0.8 Dark

*Refer to glossary.

Window Frames SA 0.8 Dark

Slab Waffle Pod

Room *schedule*

Room	Zone Type	Area [m²]
Kitchen/Famil/Meals	kitchen	53.3
Ldry	unconditioned	4
Garage	garage	17.6
Living	living	29
ENS	nightTime	3.8
Visitor	bedroom	10.1
ENS	nightTime	3.5
WIR	nightTime	3.4
Bedroom 2	bedroom	10.7
Bedroom 3	bedroom	10.7
Bath	unconditioned	5.2
Bedroom 4	bedroom	10.7
Master	bedroom	17.1
Void	living	19.7

Window and glazed door *type and performance*

Default* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-004-03 A	Aluminium B DG Air Fill High Solar Gain low-E -Clear	4.3	0.53	0.5	0.56
ALM-001-01 A	Aluminium A SG Clear	6.7	0.57	0.54	0.6

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
Kitchen/Famil/M-eals	ALM-002-03 A	SDG1	2400	4200	sliding	60.0	W	No

*Refer to glossary.

Kitchen/Famil/M-eals	ALM-002-03 A	WG8	900	2400	sliding	45.0	S	No
Kitchen/Famil/M-eals	ALM-002-03 A	WG7	900	2700	sliding	30.0	N	No
Kitchen/Famil/M-eals	ALM-002-03 A	WG5	600	3000	fixed	0.0	N	No
Kitchen/Famil/M-eals	ALM-002-03 A	WG6	600	900	fixed	0.0	N	No
Ldry	ALM-002-01 A	WG1	2100	900	sliding	30.0	W	No
Garage	ALM-002-01 A	WG2	900	1800	sliding	45.0	N	No
Living	ALM-002-01 A	WG1	2100	900	double_hung	45.0	E	No
ENS	ALM-001-03 A	WG4	1200	600	awning	90.0	N	No
Visitor	ALM-004-03 A	WG3	1500	1800	sliding	45.0	N	No
ENS	ALM-002-01 A	WF5	900	1800	sliding	45.0	N	No
Bedroom 2	ALM-002-03 A	WF3	1500	1800	sliding	45.0	N	No
Bedroom 3	ALM-002-03 A	WF3	1500	1800	sliding	45.0	N	No
Bath	ALM-001-01 A	WF4	1200	900	awning	90.0	N	No
Bedroom 4	ALM-002-03 A	SDF1	2400	2400	sliding	60.0	E	No
Bedroom 4	ALM-002-03 A	WF2	900	1800	sliding	45.0	N	No
Master	ALM-002-03 A	SDF2	2400	2400	sliding	60.0	W	No
Void	ALM-002-01 A	WF2	900	1800	sliding	45.0	S	No
Void	ALM-002-01 A	WF1	2100	900	double_hung	45.0	W	No
Void	ALM-002-01 A	WF1	2100	900	double_hung	45.0	E	No

Roof window* *type and performance value*

Default* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Roof window* *schedule*

Location	Window ID	Window no.	Opening %	Area [m²]	Width [mm]	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight* *type and performance*

*Refer to glossary.

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m²]	Orient-ation	Outdoor shade	Diffuser
No Data Available							

External door *schedule*

Location	Height [mm]	Width [mm]	Opening %	Orientation
Garage	2400	2500	100.0	E
Living	2400	1100	100.0	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*
1	FR5 - Brick Veneer	0.5	Medium	Glass fibre batt: R2.5 (R2.5)	No
2	CUST - Double Brick Party Wall + Plaster	0.5	Medium	Glass fibre batt: R2.5 (R2.5)	No

External wall *schedule*

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature* (yes/no)
Kitchen/Famil/Meals	1	3000	5264	W	4500	Yes
Kitchen/Famil/Meals	1	3000	9702	S	0	No
Kitchen/Famil/Meals	1	3000	10217	N	0	Yes
Ldry	1	3000	1149	W	0	No
Ldry	2	3000	1868	S	0	No
Garage	1	3000	1485	S	0	No
Garage	1	3000	2963	E	0	No
Garage	1	3000	5972	N	0	Yes
Living	2	3000	8074	S	0	No
Living	1	3000	3376	E	0	Yes
ENS	1	3000	1782	N	0	Yes
Visitor	1	3000	2963	N	0	Yes
ENS	1	2700	1580	W	1553	No
ENS	1	2700	2239	N	257	No
WIR	1	2700	2202	N	321	No
Bedroom 2	1	2700	3005	N	282	No
Bedroom 3	1	2700	3020	N	311	No

*Refer to glossary.

Bath	1	2700	2092	N	313	No
Bedroom 4	1	2700	3580	E	1642	No
Bedroom 4	1	2700	3042	N	368	No
Master	1	2700	3571	W	1525	No
Master	1	2700	4506	S	982	No
Master	1	2700	595	SE	0	No
Master	1	2700	988	S	1577	No
Void	1	2700	6344	S	1577	No
Void	1	2700	1761	W	13424	No
Void	2	2700	4098	S	0	No
Void	1	2700	1621	E	0	Yes
Void	1	2700	1107	E	1626	No

Internal wall *type*

Wall ID	Wall type	Area [m²]	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	161.3	Glass fibre batt: R2.0 (R2.0)

Floor *type*

Location	Construction	Area [m²]	Sub-floor ventilation	Added insulation [R-value]	Covering
Kitchen/Famil/Me- als	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	0.5	Enclosed	R0.0	Tiles
Kitchen/Famil/Me- als	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	8.7	Enclosed	R0.0	Tiles
Kitchen/Famil/Me- als	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	24.6	Enclosed	R0.0	Tiles
Kitchen/Famil/Me- als	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	19.5	Enclosed	R0.0	Tiles
Ldry	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	2.9	Enclosed	R0.0	Tiles
Ldry	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	1.2	Enclosed	R0.0	Tiles
Garage	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	3.9	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	13.7	Enclosed	R0.0	none
Living	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	14.4	Enclosed	R0.0	Tiles
Living	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	8.6	Enclosed	R0.0	Tiles
Living	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	5.9	Enclosed	R0.0	Tiles
ENS	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles

*Refer to glossary.

Visitor	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	10.1	Enclosed	R0.0	Carpet
ENS	FR5 - Timber Lined	3.5	Enclosed	R0.0	Tiles
WIR	FR5 - Timber Lined	3.4	Enclosed	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.7	Enclosed	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.7	Enclosed	R0.0	Carpet
Bath	FR5 - Timber Lined	5.2	Enclosed	R0.0	Tiles
Bedroom 4	FR5 - Timber Lined	10.7	Enclosed	R0.0	Carpet
Master	FR5 - Timber Lined	17.1	Enclosed	R0.0	Carpet
Void	FR5 - Timber Lined	19.7	Enclosed	R0.0	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value [may include edge batt values]	Reflective wrap*
Kitchen/Famil/Me- als	FR5 - Timber Lined	R0.0	No
Kitchen/Famil/Me- als	FR5 - Timber Lined	R0.0	No
Kitchen/Famil/Me- als	FR5 - Timber Lined	R0.0	No
Kitchen/Famil/Me- als	Plasterboard	R4.0	Yes
Ldry	Plasterboard	R4.0	Yes
Ldry	FR5 - Timber Lined	R0.0	No
Garage	Plasterboard	R4.0	Yes
Garage	FR5 - Timber Lined	R0.0	No
Living	FR5 - Timber Lined	R0.0	No
Living	FR5 - Timber Lined	R0.0	No
Living	Plasterboard	R4.0	Yes
ENS	FR5 - Timber Lined	R0.0	No
Visitor	FR5 - Timber Lined	R0.0	No
ENS	Plasterboard	R4.0	Yes
WIR	Plasterboard	R4.0	Yes
Bedroom 2	Plasterboard	R4.0	Yes
Bedroom 3	Plasterboard	R4.0	Yes
Bath	Plasterboard	R4.0	Yes
Bedroom 4	Plasterboard	R4.0	Yes
Master	Plasterboard	R4.0	Yes
Void	Plasterboard	R4.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Height [mm]	Width [mm]	Sealed/unsealed
ENS	1	Exhaust Fans	200	200	Sealed
ENS	1	Exhaust Fans	200	200	Sealed

*Refer to glossary.

Bath	1	Exhaust Fans	200	200	Sealed

Ceiling *fans*

Location	Quantity	Diameter [mm]
No Data Available		

Roof *type*

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Cont:Attic-Continuous	1.8	0.8	Dark

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]
No Data Available				

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.				

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.				

Hot water system

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Hot Water CER Zone	Zone 3 STC	Assessed daily load
No Whole of Home performance assessment conducted for this certificate.					

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.			

Onsite renewable energy *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Orientation	System size or generation capacity
No Whole of Home performance assessment conducted for this certificate.		

*Refer to glossary.

Battery *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Size [battery storage capacity]
No Whole of Home performance assessment conducted for this certificate.	

*Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.

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

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
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, range hoods, 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.
COP	Coefficient of performance
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.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your homes rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
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.
Net zero home	a home that achieves a net zero energy value*.
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
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate air gap 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 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.

*Refer to glossary.

STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
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).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

*Refer to glossary.

Nationwide House Energy Rating Scheme®
NatHERS® Certificate No. PYBUBSUY5I

Generated on 21 Jan 2025 using FirstRate5: 5.5.5a (3.22)

Property

Address	Unit 2, No.16 Ely Street, Revesby, NSW, 2212
Lot/DP	41/5/2343
NCC Class*	Class 1a
Floor/all Floors Type	New Home

Plans

Main plan	181/25 Iss A DA Sht 1 18.1.25
Prepared by	Rafla Arch

Construction and environment

Assessed floor area [m²]*		**Exposure type**
Conditioned*	163.2	suburban
Unconditioned*	26.8	**NatHERS climate zone**
Total	190	56 Mascot AMO
Garage	17.6	

Accredited assessor

Name	Bianca Alderton
Business name	Red Road Engineers
Email	energy@redroadengineers.com.au
Phone	0411067691
Accreditation No.	101102
Assessor Accrediting Organisation	ABSA
Declaration of interest	No

NCC Requirements

NCC provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

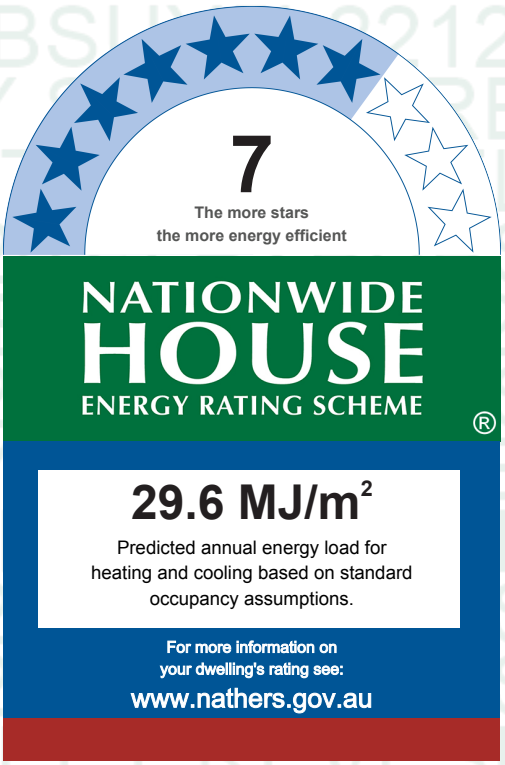
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two.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

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

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

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

Thermal performance star rating



Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	15	14.6
Load limits	N/A	N/A

Features determining load limits

Floor type (lowest conditioned area)	N/A
NCC climate zone 1 or 2	N/A
Outdoor living area	N/A
Outdoor living area ceiling fan	N/A

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au/QRCodeLanding?PublicId=PYBUBSUY5I When using either link, ensure you are visiting www.fr5.com.au.

*Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:

- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA – not applicable

Outdoor living area:

- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA – not applicable

Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

Energy use:

Greenhouse gas emissions:

Cost:

Graph key:

*Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐		☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone?	☐	☐	☐	☐	☐

*Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			
Other NCC requirements					

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes

Insulation

Ceiling R4.0

Roof R1.8 Blanket

External Walls R2.5

Internal Walls R2.0

External Walls Medium SA 0.5

Roof SA 0.8 Dark

*Refer to glossary.

Window Frames SA 0.8 Dark

Slab Waffle Pod

Room *schedule*

Room	Zone Type	Area [m²]
Kitchen/Famil/Meals	kitchen	53.3
Ldry	unconditioned	4
Garage	garage	17.6
Living	living	29
ENS	nightTime	3.8
Visitor	bedroom	10.1
ENS	nightTime	3.5
WIR	nightTime	3.4
Bedroom 2	bedroom	10.7
Bedroom 3	bedroom	10.7
Bath	unconditioned	5.2
Bedroom 4	bedroom	10.7
Master	bedroom	17.1
Void	living	19.7

Window and glazed door *type and performance*

Default* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
ALM-004-03 A	Aluminium B DG Air Fill High Solar Gain low-E -Clear	4.3	0.53	0.5	0.56
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61
ALM-001-01 A	Aluminium A SG Clear	6.7	0.57	0.54	0.6

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
Kitchen/Famil/M-eals	ALM-004-03 A	WG7	900	2700	sliding	45.0	S	No

*Refer to glossary.

Kitchen/Famil/Meals	ALM-004-03 A	WG5	600	3000	fixed	0.0	S	No
Kitchen/Famil/Meals	ALM-004-03 A	WG6	600	900	fixed	0.0	S	No
Kitchen/Famil/Meals	ALM-004-03 A	WG8	900	2400	sliding	45.0	N	No
Kitchen/Famil/Meals	ALM-004-03 A	SDG1	2400	4200	sliding	60.0	W	No
Ldry	ALM-002-01 A	WG1	2100	900	sliding	30.0	W	No
Garage	ALM-002-01 A	WG2	900	1800	sliding	45.0	S	No
Living	ALM-004-03 A	WG1	2100	900	double_hung	45.0	E	No
ENS	ALM-001-03 A	WG4	1200	600	awning	90.0	S	No
Visitor	ALM-004-03 A	WG3	1500	1800	sliding	45.0	S	No
ENS	ALM-002-03 A	WF5	900	1800	sliding	45.0	S	No
Bedroom 2	ALM-004-03 A	WF3	1500	1800	sliding	45.0	S	No
Bedroom 3	ALM-004-03 A	WF3	1500	1800	sliding	45.0	S	No
Bath	ALM-001-01 A	WF4	1200	900	awning	90.0	S	No
Bedroom 4	ALM-004-03 A	WF2	900	1800	sliding	45.0	S	No
Bedroom 4	ALM-004-03 A	SDF1	2400	2400	sliding	60.0	E	No
Master	ALM-004-03 A	SDF2	2400	2400	sliding	60.0	W	No
Void	ALM-004-03 A	WF1	2100	900	double_hung	45.0	E	No
Void	ALM-004-03 A	WF1	2100	900	double_hung	45.0	W	No
Void	ALM-004-03 A	WF2	900	1800	sliding	45.0	N	No

Roof window* *type and performance value*

Default* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Roof window* *schedule*

Location	Window ID	Window no.	Opening %	Area [m²]	Width [mm]	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight* *type and performance*

*Refer to glossary.

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m²]	Orient-ation	Outdoor shade	Diffuser
No Data Available							

External door *schedule*

Location	Height [mm]	Width [mm]	Opening %	Orientation
Garage	2400	2500	100.0	E
Living	2400	1100	100.0	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*
1	FR5 - Brick Veneer	0.5	Medium	Glass fibre batt: R2.5 (R2.5)	No
2	CUST - Double Brick Party Wall + Plaster	0.5	Medium	Glass fibre batt: R2.5 (R2.5)	No

External wall *schedule*

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature* (yes/no)
Kitchen/Famil/Meals	1	3000	10217	S	0	Yes
Kitchen/Famil/Meals	1	3000	9702	N	0	No
Kitchen/Famil/Meals	1	3000	5264	W	4500	Yes
Ldry	2	3000	1868	N	0	No
Ldry	1	3000	1149	W	0	No
Garage	1	3000	5972	S	0	Yes
Garage	1	3000	2963	E	0	No
Garage	1	3000	1485	N	0	No
Living	1	3000	3376	E	2000	Yes
Living	2	3000	8074	N	0	No
ENS	1	3000	1782	S	0	Yes
Visitor	1	3000	2963	S	0	Yes
ENS	1	2700	2239	S	257	No
ENS	1	2700	1580	W	1553	No
WIR	1	2700	2202	S	321	No
Bedroom 2	1	2700	3005	S	282	No
Bedroom 3	1	2700	3020	S	311	No

*Refer to glossary.

Bath	1	2700	2092	S	313	No
Bedroom 4	1	2700	3042	S	368	No
Bedroom 4	1	2700	3580	E	1642	No
Master	1	2700	988	N	1577	No
Master	1	2700	595	E	0	No
Master	1	2700	4506	N	982	No
Master	1	2700	3571	W	1525	No
Void	1	2700	1107	E	1626	No
Void	1	2700	1621	E	0	No
Void	2	2700	4098	N	0	No
Void	1	2700	1761	W	13424	No
Void	1	2700	6344	N	1577	No

Internal wall *type*

Wall ID	Wall type	Area [m²]	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	161.3	Glass fibre batt: R2.0 (R2.0)

Floor *type*

Location	Construction	Area [m²]	Sub-floor ventilation	Added insulation [R-value]	Covering
Kitchen/Famil/Me- als	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	0.5	Enclosed	R0.0	Tiles
Kitchen/Famil/Me- als	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	8.7	Enclosed	R0.0	Tiles
Kitchen/Famil/Me- als	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	24.6	Enclosed	R0.0	Tiles
Kitchen/Famil/Me- als	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	19.5	Enclosed	R0.0	Tiles
Ldry	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	2.9	Enclosed	R0.0	Tiles
Ldry	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	1.2	Enclosed	R0.0	Tiles
Garage	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	3.9	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	13.7	Enclosed	R0.0	none
Living	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	14.4	Enclosed	R0.0	Tiles
Living	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	8.6	Enclosed	R0.0	Tiles
Living	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	5.9	Enclosed	R0.0	Tiles
ENS	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles

*Refer to glossary.

Visitor	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	10.1	Enclosed	R0.0	Carpet
ENS	FR5 - Timber Lined	3.5	Enclosed	R0.0	Tiles
WIR	FR5 - Timber Lined	3.4	Enclosed	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.7	Enclosed	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.7	Enclosed	R0.0	Carpet
Bath	FR5 - Timber Lined	5.2	Enclosed	R0.0	Tiles
Bedroom 4	FR5 - Timber Lined	10.7	Enclosed	R0.0	Carpet
Master	FR5 - Timber Lined	17.1	Enclosed	R0.0	Carpet
Void	FR5 - Timber Lined	19.7	Enclosed	R0.0	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value [may include edge batt values]	Reflective wrap*
Kitchen/Famil/Me- als	FR5 - Timber Lined	R0.0	No
Kitchen/Famil/Me- als	FR5 - Timber Lined	R0.0	No
Kitchen/Famil/Me- als	FR5 - Timber Lined	R0.0	No
Kitchen/Famil/Me- als	Plasterboard	R4.0	Yes
Ldry	Plasterboard	R4.0	Yes
Ldry	FR5 - Timber Lined	R0.0	No
Garage	Plasterboard	R4.0	Yes
Garage	FR5 - Timber Lined	R0.0	No
Living	FR5 - Timber Lined	R0.0	No
Living	FR5 - Timber Lined	R0.0	No
Living	Plasterboard	R4.0	Yes
ENS	FR5 - Timber Lined	R0.0	No
Visitor	FR5 - Timber Lined	R0.0	No
ENS	Plasterboard	R4.0	Yes
WIR	Plasterboard	R4.0	Yes
Bedroom 2	Plasterboard	R4.0	Yes
Bedroom 3	Plasterboard	R4.0	Yes
Bath	Plasterboard	R4.0	Yes
Bedroom 4	Plasterboard	R4.0	Yes
Master	Plasterboard	R4.0	Yes
Void	Plasterboard	R4.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Height [mm]	Width [mm]	Sealed/unsealed
ENS	1	Exhaust Fans	200	200	Sealed
ENS	1	Exhaust Fans	200	200	Sealed

*Refer to glossary.

Bath	1	Exhaust Fans	200	200	Sealed

Ceiling *fans*

Location	Quantity	Diameter [mm]
No Data Available		

Roof *type*

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Cont:Attic-Continuous	1.8	0.8	Dark

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]
No Data Available				

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.				

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.				

Hot water system

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Hot Water CER Zone	Zone 3 STC	Assessed daily load
No Whole of Home performance assessment conducted for this certificate.					

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.			

Onsite renewable energy *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Orientation	System size or generation capacity
No Whole of Home performance assessment conducted for this certificate.		

*Refer to glossary.

Battery *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Size [battery storage capacity]
No Whole of Home performance assessment conducted for this certificate.	

*Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.

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

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
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, range hoods, 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.
COP	Coefficient of performance
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.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your homes rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
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.
Net zero home	a home that achieves a net zero energy value*.
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
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate air gap 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 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.

*Refer to glossary.

STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
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).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

*Refer to glossary.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. XIJB55VYOA

Generated on 21 Jan 2025 using FirstRate5: 5.5.5a (3.22)

Property

Address	GF 1, Unit 1 No.16 Ely Street, Revesby, NSW, 2212
Lot/DP	41/5/2343
NCC Class*	Class 1a
Floor/all Floors Type	New Home

Plans

Main plan	181/25 Iss A DA Sht 1 18.1.25
Prepared by	Rafla Arch

Construction and environment

Assessed floor area [m²]*		**Exposure type**
Conditioned*	53	suburban
Unconditioned*	5.1	**NatHERS climate zone**
Total	58.1	56 Mascot AMO
Garage	-	

Accredited assessor

Name	Bianca Alderton
Business name	Red Road Engineers
Email	energy@redroadengineers.com.au
Phone	0411067691
Accreditation No.	101102
Assessor Accrediting Organisation	ABSA
Declaration of interest	No

NCC Requirements

NCC provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

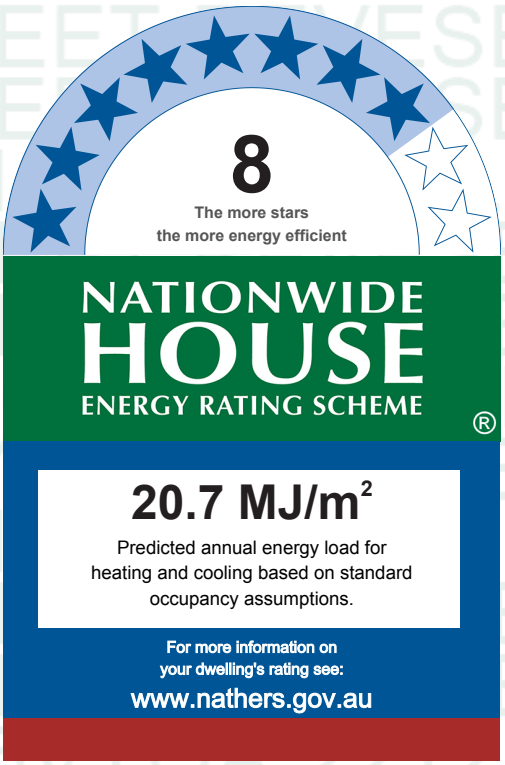
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two.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

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

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

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

Thermal performance star rating



Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	11.9	8.8
Load limits	N/A	N/A

Features determining load limits

Floor type (lowest conditioned area)	N/A
NCC climate zone 1 or 2	N/A
Outdoor living area	N/A
Outdoor living area ceiling fan	N/A

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au/QRCodeLanding?PublicId=XIJB55VYOA When using either link, ensure you are visiting www.fr5.com.au.

*Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:

- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA – not applicable

Outdoor living area:

- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA – not applicable

Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

Energy use:

No Whole of Home performance assessment conducted for this certificate.

Greenhouse gas emissions:

No Whole of Home performance assessment conducted for this certificate.

Cost:

No Whole of Home performance assessment conducted for this certificate.

Graph key:

*Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐		☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone?	☐	☐	☐	☐	☐

*Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			
Other NCC requirements					

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes

Insulation

Ceiling R2.0

Roof R1.8 Blanket

External Walls R1.5

External Walls Medium SA 0.5

Roof SA 0.8 Dark

Window Frames SA 0.8 Dark

*Refer to glossary.

Slab Waffle Pod

Room *schedule*

Room	Zone Type	Area [m²]
Bedroom 1	bedroom	10.3
Kitchen/Living/Dining	kitchen	31.1
Bedroom 2	bedroom	11.6
Ldry/Bath	unconditioned	5.1

Window and glazed door *type and performance*

Default* windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
No Data Available					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	ALM-002-01 A	WG3a	1200	1500	sliding	45.0	N	No
Kitchen/Living/-Dining	ALM-002-01 A	WG2a	600	1800	sliding	45.0	S	No
Kitchen/Living/-Dining	ALM-002-01 A	WG4a	600	2100	sliding	45.0	S	No
Kitchen/Living/-Dining	ALM-002-01 A	WG1a	800	1200	sliding	45.0	E	No
Kitchen/Living/-Dining	ALM-002-01 A	WG1a	800	1200	sliding	45.0	E	No
Kitchen/Living/-Dining	ALM-002-01 A	WG4a	600	2100	sliding	45.0	N	No
Bedroom 2	ALM-002-01 A	WG3a	1200	1500	sliding	45.0	N	No
Bedroom 2	ALM-002-01 A	WG3a	1200	1500	sliding	45.0	W	No
Ldry/Bath	ALM-002-01 A	WG6a	600	900	sliding	45.0	S	No

Roof window* *type and performance value*

Default* roof windows

Substitution tolerance ranges

*Refer to glossary.

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges: SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges: SHGC lower limit	SHGC upper limit
No Data Available					

Roof window* *schedule*

Location	Window ID	Window no.	Opening %	Area [m²]	Width [mm]	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight* *type and performance*

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m²]	Orient-ation	Outdoor shade	Diffuser
No Data Available							

External door *schedule*

Location	Height [mm]	Width [mm]	Opening %	Orientation
Kitchen/Living/Dining	2100	900	100.0	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*
1	FR5 - Brick Veneer	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No

External wall *schedule*

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature* (yes/no)
Bedroom 1	1	2400	3645	N	525	No
Kitchen/Living/Dining	1	2400	8295	S	539	No
Kitchen/Living/Dining	1	2400	5291	E	2390	No
Kitchen/Living/Dining	1	2400	4160	N	494	No
Bedroom 2	1	2400	3248	N	526	No
Bedroom 2	1	2400	3581	W	499	No

*Refer to glossary.

Ldry/Bath	1	2400	2862	S	618	No
Ldry/Bath	1	2400	1615	W	529	No

Internal wall *type*

Wall ID	Wall type	Area [m²]	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	39.2	

Floor *type*

Location	Construction	Area [m²]	Sub-floor ventilation	Added insulation [R-value]	Covering
Bedroom 1	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	10.3	Enclosed	R0.0	Carpet
Kitchen/Living/D- ining	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	31.1	Enclosed	R0.0	Tiles
Bedroom 2	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	11.6	Enclosed	R0.0	Carpet
Ldry/Bath	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	5.1	Enclosed	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value [may include edge batt values]	Reflective wrap*
Bedroom 1	Plasterboard	R2.0	Yes
Kitchen/Living/D- ining	Plasterboard	R2.0	Yes
Bedroom 2	Plasterboard	R2.0	Yes
Ldry/Bath	Plasterboard	R2.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Height [mm]	Width [mm]	Sealed/unsealed
Ldry/Bath	1	Exhaust Fans	200	200	Sealed

Ceiling *fans*

Location	Quantity	Diameter [mm]
No Data Available		

Roof *type*

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Cont:Attic-Continuous	1.8	0.8	Dark

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]

*Refer to glossary.

No Data Available

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.				

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.				

Hot water system

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Hot Water CER Zone	Zone 3 STC	Assessed daily load
No Whole of Home performance assessment conducted for this certificate.					

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.			

Onsite renewable energy *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Orientation	System size or generation capacity
No Whole of Home performance assessment conducted for this certificate.		

Battery *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Size [battery storage capacity]
No Whole of Home performance assessment conducted for this certificate.	

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NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

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Disclaimer

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

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
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, range hoods, 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.
COP	Coefficient of performance
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.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your homes rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
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.
Net zero home	a home that achieves a net zero energy value*.
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
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate air gap 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 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.

*Refer to glossary.

STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
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).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

*Refer to glossary.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. J51ST46KQH

Generated on 21 Jan 2025 using FirstRate5: 5.5.5a (3.22)

Property

Address	GF 2, Unit 2 No.16 Ely Street, Revesby, NSW, 2212
Lot/DP	41/5/2343
NCC Class*	Class 1a
Floor/all Floors	
Type	New Home

Plans

Main plan	181/25 Iss A DA Sht 1 18.1.25
Prepared by	Rafla Arch

Construction and environment

Assessed floor area [m²]*		**Exposure type**
Conditioned*	53	suburban
Unconditioned*	5.1	**NatHERS climate zone**
Total	58.1	56 Mascot AMO
Garage	-	

Accredited assessor

Name	Bianca Alderton
Business name	Red Road Engineers
Email	energy@redroadengineers.com.au
Phone	0411067691
Accreditation No.	101102
Assessor Accrediting Organisation	ABSA
Declaration of interest	No

NCC Requirements

NCC provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

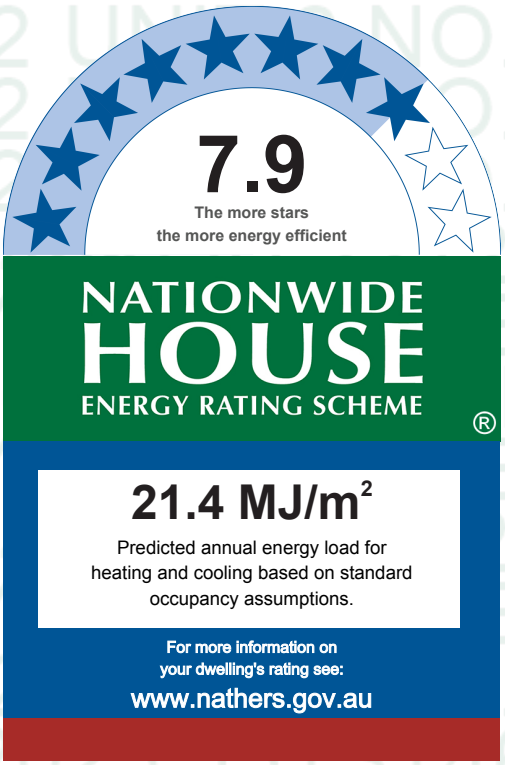
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two.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

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

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

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

Thermal performance star rating



Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	12.2	9.2
Load limits	N/A	N/A

Features determining load limits

Floor type (lowest conditioned area)	N/A
NCC climate zone 1 or 2	N/A
Outdoor living area	N/A
Outdoor living area ceiling fan	N/A

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au/QRCodeLanding?PublicId=J51ST46KQH When using either link, ensure you are visiting www.fr5.com.au.

*Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

Energy use:

No Whole of Home performance assessment conducted for this certificate.

Greenhouse gas emissions:

No Whole of Home performance assessment conducted for this certificate.

Cost:

No Whole of Home performance assessment conducted for this certificate.

Graph key:

*Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐		☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone?	☐	☐	☐	☐	☐

*Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			
Other NCC requirements					

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes

Insulation

Ceiling R2.0

Roof R1.8 Blanket

External Walls R1.5

External Walls Medium SA 0.5

Roof SA 0.8 Dark

Window Frames SA 0.8 Dark

*Refer to glossary.

Slab Waffle Pod

Room *schedule*

Room	Zone Type	Area [m²]
Bedroom 1	bedroom	10.3
Kitchen/Living/Dining	kitchen	31.1
Bedroom 2	bedroom	11.6
Ldry/Bath	unconditioned	5.1

Window and glazed door *type and performance*

Default* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	ALM-002-01 A	WG3a	1200	1500	sliding	45.0	S	No
Kitchen/Living/-Dining	ALM-002-01 A	WG4a	600	2100	sliding	45.0	S	No
Kitchen/Living/-Dining	ALM-002-01 A	WG1a	800	1200	sliding	45.0	E	No
Kitchen/Living/-Dining	ALM-002-01 A	WG1a	800	1200	sliding	45.0	E	No
Kitchen/Living/-Dining	ALM-002-01 A	WG2a	600	1800	sliding	45.0	N	No
Kitchen/Living/-Dining	ALM-002-01 A	WG4a	600	2100	sliding	45.0	N	No
Bedroom 2	ALM-002-01 A	WG3a	1200	1500	sliding	45.0	W	No
Bedroom 2	ALM-002-01 A	WG3a	1200	1500	sliding	45.0	S	No
Ldry/Bath	ALM-002-01 A	WG6a	600	900	sliding	45.0	N	No

Roof window* *type and performance value*

Default* roof windows

				Substitution tolerance ranges	

*Refer to glossary.

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges: SHGC lower limit	Substitution tolerance ranges: SHGC upper limit
No Data Available					

Custom* roof windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges: SHGC lower limit	Substitution tolerance ranges: SHGC upper limit
No Data Available					

Roof window* *schedule*

Location	Window ID	Window no.	Opening %	Area [m²]	Width [mm]	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight* *type and performance*

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m²]	Orient-ation	Outdoor shade	Diffuser
No Data Available							

External door *schedule*

Location	Height [mm]	Width [mm]	Opening %	Orientation
Kitchen/Living/Dining	2100	900	100.0	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*
1	FR5 - Brick Veneer	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No

External wall *schedule*

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature* (yes/no)
Bedroom 1	1	2400	3645	S	525	No
Kitchen/Living/Dining	1	2400	4160	S	494	No
Kitchen/Living/Dining	1	2400	5291	E	2390	No
Kitchen/Living/Dining	1	2400	8295	N	539	No
Bedroom 2	1	2400	3581	W	499	No
Bedroom 2	1	2400	3248	S	526	No

*Refer to glossary.

Ldry/Bath	1	2400	1615	W	529	No
Ldry/Bath	1	2400	2862	N	618	No

Internal wall *type*

Wall ID	Wall type	Area [m²]	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	39.2	

Floor *type*

Location	Construction	Area [m²]	Sub-floor ventilation	Added insulation [R-value]	Covering
Bedroom 1	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	10.3	Enclosed	R0.0	Carpet
Kitchen/Living/D- ining	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	31.1	Enclosed	R0.0	Tiles
Bedroom 2	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	11.6	Enclosed	R0.0	Carpet
Ldry/Bath	FR5 - 300mm waffle pod, 100mm concrete (R0.63)	5.1	Enclosed	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value [may include edge batt values]	Reflective wrap*
Bedroom 1	Plasterboard	R2.0	Yes
Kitchen/Living/D- ining	Plasterboard	R2.0	Yes
Bedroom 2	Plasterboard	R2.0	Yes
Ldry/Bath	Plasterboard	R2.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Height [mm]	Width [mm]	Sealed/unsealed
Ldry/Bath	1	Exhaust Fans	200	200	Sealed

Ceiling *fans*

Location	Quantity	Diameter [mm]
No Data Available		

Roof *type*

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Cont:Attic-Continuous	1.8	0.8	Dark

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]

*Refer to glossary.

No Data Available

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.				

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.				

Hot water system

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Hot Water CER Zone	Zone 3 STC	Assessed daily load
No Whole of Home performance assessment conducted for this certificate.					

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Whole of Home performance assessment conducted for this certificate.			

Onsite renewable energy *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Orientation	System size or generation capacity
No Whole of Home performance assessment conducted for this certificate.		

Battery *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

System type	Size [battery storage capacity]
No Whole of Home performance assessment conducted for this certificate.	

*Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

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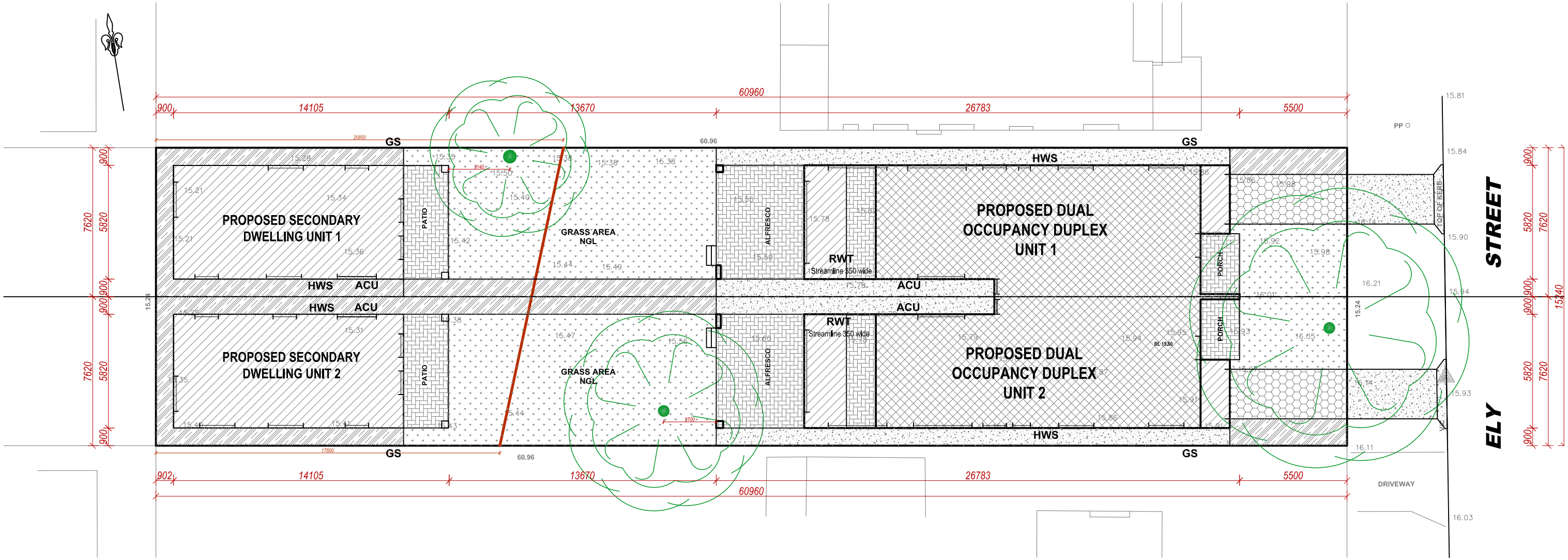
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate air gap 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 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.

*Refer to glossary.

STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
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).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

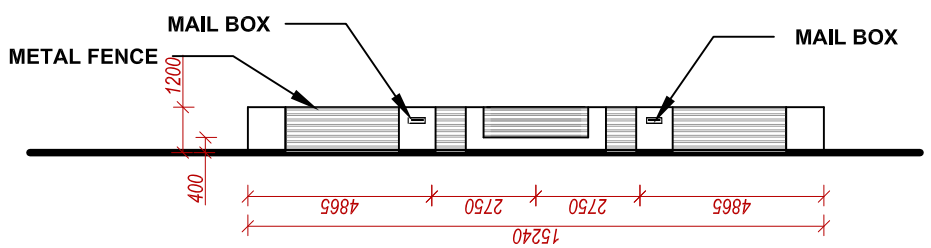
*Refer to glossary.



SITE PLAN
1:200

LEGEND	
GS	GARBAGE SPACE
ACU	AIR CONDITION UNIT
RWT	RAIN WATER TANK TO BASIX REQUIREMENTS
CL	CLOSES LINES
HWS	HOT WATER SYSTEM TO BASIX REQUIREMENTS
PE	POOL EQUIPMENT

LEGEND	
	PLAIN CONCRETE
	GRASS AREA
	MULCH AREA
	STENSELL CONCRETE
	TILES AREA
	SECOND STORY
	GROUND LEVEL



NOTE: **STEEL FENCE AND GATES ARE TO BE CONSTRUCTED FROM SWIMMING POOL TYPE FENCING TO ALLOW LINE OF SITE.**

SITE FENCE

TOTAL LAND AREA CALC		= 929.0 m^2
GROUND FLOOR PER UNIT	= 100.0 x 2	
FIRST FLOOR PER UNIT	= 72.2 x 2	
GRANNY FLAT AREA	= 60.0 x 2	
TOTALS	= 232.2 x 2	= 464.4 m^2
LANDSCAPE AREA	= 165.1x 2	= 330.2 m2 = 35.5%

GENERAL NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS.
- ALL CONSTRUCTION IS TO BE TO THE RELEVANT AUSTRALIAN STANDARDS .THE DCP COUNCIL REQUIREMENTS AND WHERE NECESSARY TO ENGINEERS SPECIFICATIONS AND DETAILS.
- ALL FOOTINGS TO ENGINEERS SPECIFICATIONS.
- DO NOT SCALE OFF.
- BUILDER TO CHECK AND VERIFY ALL DIMENSIONS AND LEVELS ON SITE ,BEFORE COMMENCING CONSTRUCTION.
- BUILDER TO ENSURE NO BUILDING LINE OR EASEMENTS ENCROACHMENTS.
- ARCHITECTURAL PLANS ARE TO BE READ IN CONJUNCTION WITH THE BUILDING SPECIFICATION.
- IF IN DOUBT ,REFER TO OWNER.
- ALL STORM-WATER AND SEWER CONNECTIONS AS PER STANDARD COUNCIL AND WATERBOARD REQUIREMENTS.

Plan No	Date	Issue No	Scale	Sheet No
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Rev.	Date	Description
A	18/01/2025	DA APPLICATION

OWNER: Mr

RAFLA ARCH
Architectural Detailing & Drafting Services
Ph: 0409 701 575
Email:rafla.arc@bigpond.com

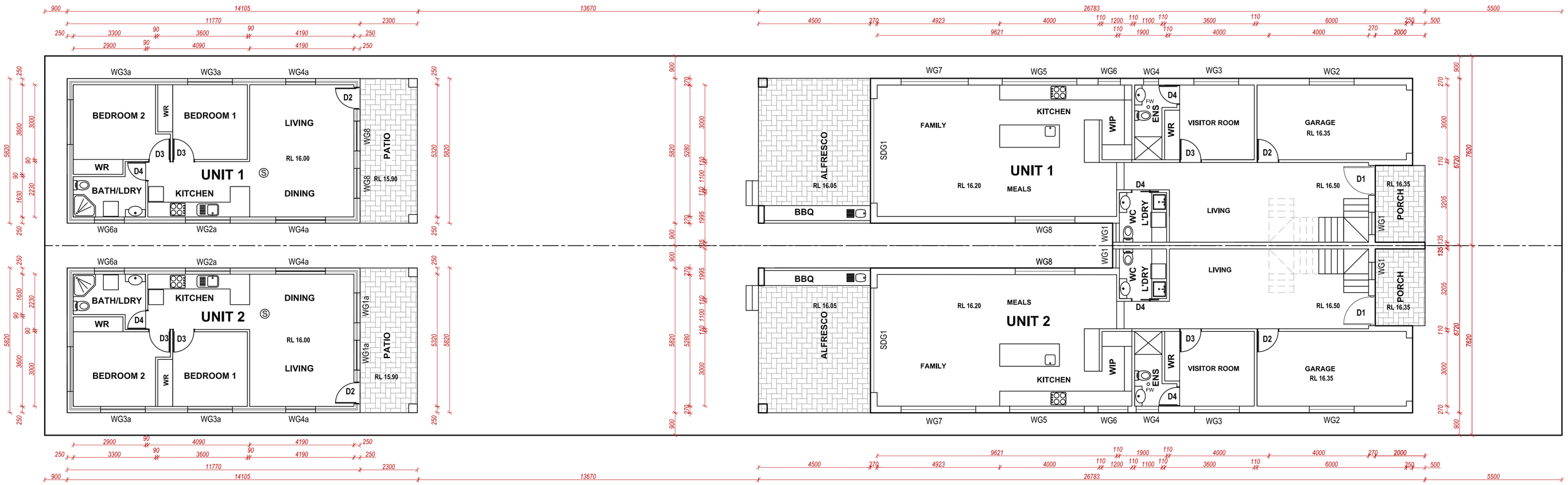
PROPOSED NEW DUPLEX AND GRANNY FLAT

SITE: 16 ELY STREET REVESBY

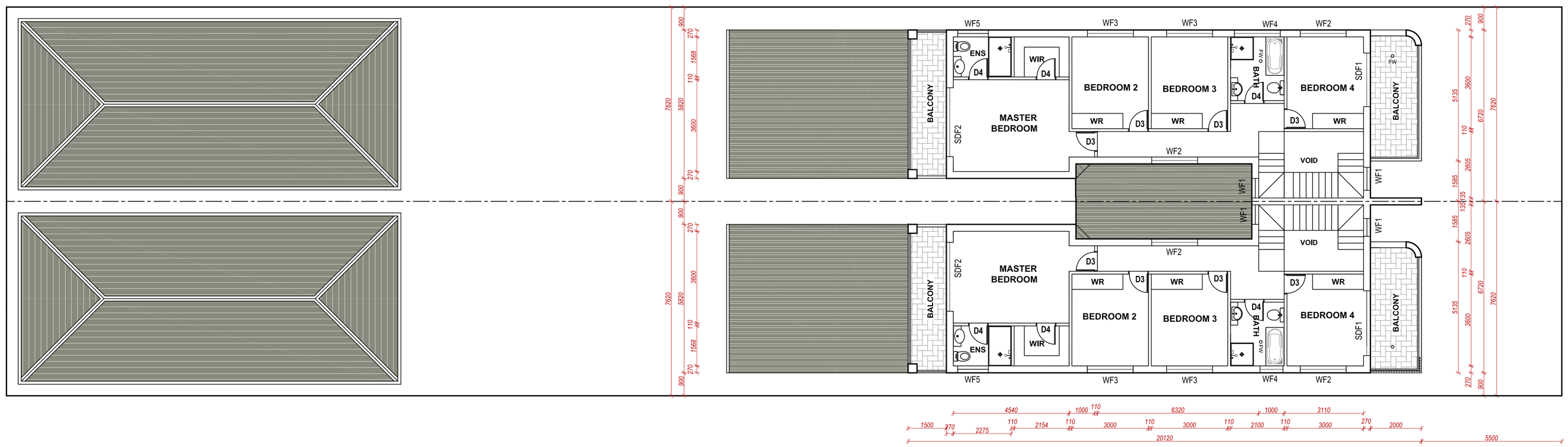
SHEET: SITE PLAN

COUNCIL: CANTERBURY BANKSTOWN CITY COUNCIL

WINDOW SCHEDULE		
Code	Height mm	Width mm
WG1	2100	900
WG2	900	1800
WG3	1500	1800
WG4	1200	600
WG5	600	3000
WG6	600	900
WG7	900	2700
WG8	900	2400
SDG1	2400	4200
WG1a	800	1200
WG2a	600	1800
WG3a	1200	1500
WG4a	600	2100
WG6a	600	900



WINDOW SCHEDULE			
Code	Height mm	Width mm	
WF1	2100	900	
WF2	900	1800	
WF3	1500	1800	
WF4	1200	900	
WF5	900	1800	
SDF1	2400	2400	
SDF2	2400	2400	
D1	2400	1200	
D2	2400	820	SOLID
D3	2400	820	INTER.
D4	2400	720	



FIRST FLOOR PLAN

Ⓢ Smoke Alarm accordance to Part 9.5 of NCC 2022 and AS3786.
Ⓜ Mechanical ventilation to in accordance with Part 10.5 & 10.6 of NCC 2022.
∘ Floor wastes accordance with Part 10.2 of NCC 2022 and AS 3740.

Plan No	Date	Issue No	Scale	Sheet No
181/25	18/01/2025	A	1:100	2

Rev.	Date	Description
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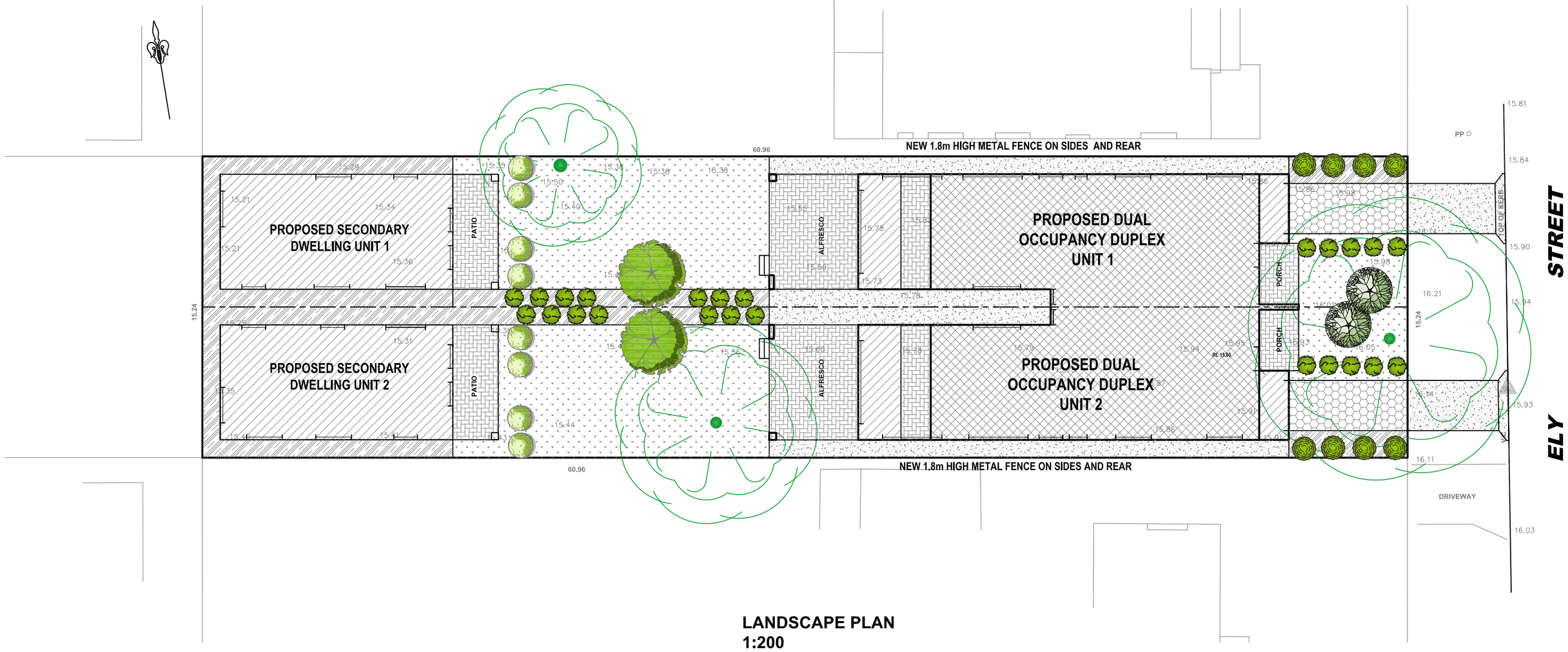
PROPOSED NEW DUPLEX AND GRANNY FLAT
SITE: 16 ELY STREET REVESBY
SHEET: GROUND FLOOR PLAN
COUNCIL: CANTERBURY BANKSTOWN CITY COUNCIL

ELY STREET



LANDSCAPE PLAN
1:200

MAINTENANCE

Maintain all landscape areas to ensure plant health and occupant safety for a period of 12 month beginning from date of practical completion to the satisfaction of council

Maintenance will include but not limited to the following actives

Mowing, edging, pruning and top dressing of turf areas, also all plants to be fed slow release fertilizer according to Manufacture recommendations

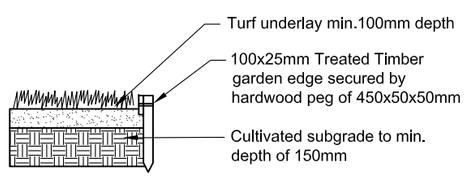
Regular ongoing observation and maintenance is required

PLANT SCHEDULE

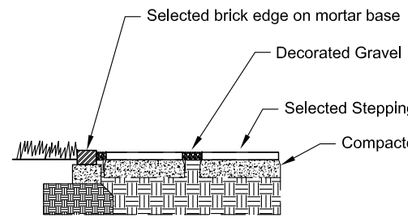
Symbol	Spacing	Botanical Name	Common Name	Size	Mature H x S
		Elaeocarpus reticulatus	*Blueberry Ash (native)*	75L	7-12m x 3-4m
		Glochidion ferdinandi	*Cheese tree (Native)*	75L	15m x 5m
	0.50	Acmena smithii 'Allyn Magic'	*Dwarf Lilly Pilly* (Native)	200mm	Low Hedge
	1m	Syzygium resillience	*Lilly Pilly* (Native)	200mm	Medium Hedge
	1.5m	Murraya paniculatas	*Orange Jessmine*	200mm	Medium Hedge
	2m	Westringia 'Jervis Gem'	Dwarf Coastal Rosemary	200mm	Low Hedge
Garden soil		Sandy loam , PH 6.5			
Mulch		Mulch annually with eucalyptus mulch to a depth of 75mm			
Fertilise		All native to be fed by OS morte Native SW relieve fertilizer. Other with osmocote slow release for trees and shrub and citrus			

GROUND COVER & LAWN

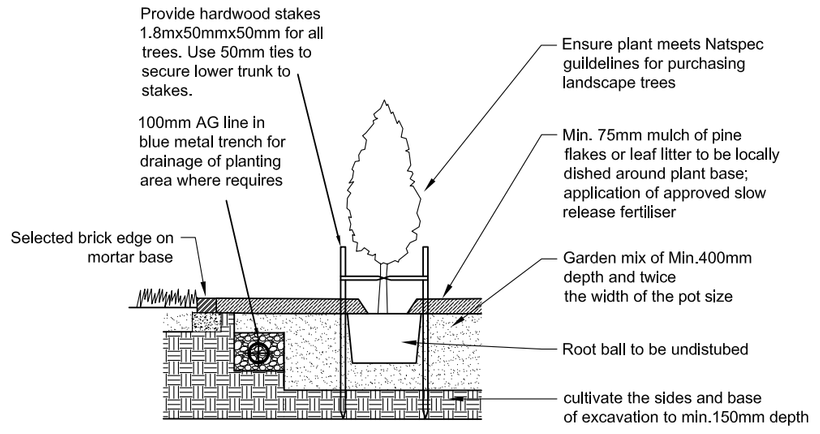
	LAWN: Sir Walter Buffalo		**GROUND COVER & OR GRAVELS**



TURF DETAIL
NTS



STEPPING STONE IN GRAVEL DETAIL
NTS



PLANTING DETAIL
NTS

LANDSCAPING NOTES AND SPECIFICATIONS

EXCAVATIONS

Any services drawn on the plan have been indicatively located, Further services may be present prior to any construction or excavation on site the relevant. Authorities should be contacted for possible location of further underground services and detailed of all services.

GARDEN BED/MULCH

The topsoil to all garden bed areas shall be 1 part site topsoil and 2 parts organic compost thoroughly mixed together prior to placing into position.

where site topsoil is not suitable imported topsoil meeting the requirements as AS4419-1998 shall be used. Topsoil depth to all garden bed areas to be garden mix 300mm deep.

Mulch consisting of pine bark is to be spread over all planter beds to a depth of 100mm. Reduce depth of mulch around base of plants to form "watering dish" to facilitate watering.

GARDEN EDGING

All garden edging as demoted by GE on the plan is to be constructed using either in-situ concrete or brick laid over 100mm layer mortar. extruded bricks shall not.

PLANT MATERIAL

All plants to be healthy and well developed without being root bound and disease free.

PROPOSED TREES

All tree planting holes are to be excavated 200mm wider and al least deeper than the root ball size. All trees are to be double staked and secured with Hessian ties as in figure 2 arrangement.

Apply 150mm layer of topsoil to all turfed areas laid over deep soil. Prior to laying turf, contractor to ensure all top soiled areas are smoothly graded with no surface depressions or other irregularities, large stones or building debris, turf used for this site shall be cultivated kikuyu. Unless specified otherwise, turf shall be laid flush with adjacent finished surface levels

EXISTING TREES

Unless specified otherwise existing trees which are to be retained are to be protected for the duration of the construction period. Install a 1.5m high temporary protective fence at a distance of 3.0m around the base of the tree or group of trees. The protective fencing shall be constructed using parrawebbing. The area to be protected is to be mulched with a 100mm layer of organic mulch such as pine bark or similar. Attache sign on fence to advice contractors. Do not store or otherwise place any harmful materials under or near such trees, Where it is absolutely necessary to cut tree roots firstly obtain council approval.

Do not carry out any tree work until all council approvals have been obtained in order to minimize root damage, any excavation work occurring near an existing tree is to be retained shall be carried out under the supervision of a qualified

prior to occupation of the dwellings all existing trees to be retained are dead or dying limbs, carried out (only with council approval) to ensure safety of future occupants.

PAVING

All pavement areas including driveway and pathways are to have a stenciled concrete finish. All pavement surfaces to comply with the requirements of AS/NZ 3661.1 1993 Slip resistance of pedestrian surface.

STANDARDS

All Materials and standards of workmanship used on this project is to comply with the latest revision of the relevant Australian Standards.

DISCREPANCIES

Should there be any discrepancies on the drawings and or on site, landscape contractor to notify the superintendent for resolution prior to commencement of the works, Where the situation is not readily resolved on site, the superintendent is to notify the landscape planner immediately for correction.

IRRIGATION

provide on housecock in the front and rear yard, or the instalation of automatic water system as owner choice.

Plan No	Date	Issue No	Scale	Sheet No
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OWNER: Mr

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PROPOSED NEW DUPLEX AND GRANNY FLAT
SITE: 16 ELY STREET REVESBY
SHEET: LANDSCAPE PLAN
COUNCIL: CANTERBURY BANKSTOWN CITY COUNCIL

TILED ROOF

METAL ROOF

METAL ROOF

METAL ROOF

TILED ROOF

20850

17600

60.96

60.96

15.24

15.24

15.38

15.38

15.38

15.50

15.40

15.42

15.44

15.49

15.47

15.56

15.44

15.86

15.98

16.14

15.92

15.98

16.21

16.01

15.93

16.05

16.14

16.11

15.81

15.84

15.90

15.94

15.93

16.03

PP

TOP OF KERB

VC

DRIVEWAY

ELY STREET

Certificate No. # J51ST46KQH

Certificate No. # XUB55VYQA

Certificate No. # PYBUBSUYSI

Certificate No. # 587NOXG99K

Plan No	Date	Issue No	Scale	Sheet No
181/25	18/01/2025	A	1:100	4

Rev.	Date	Description
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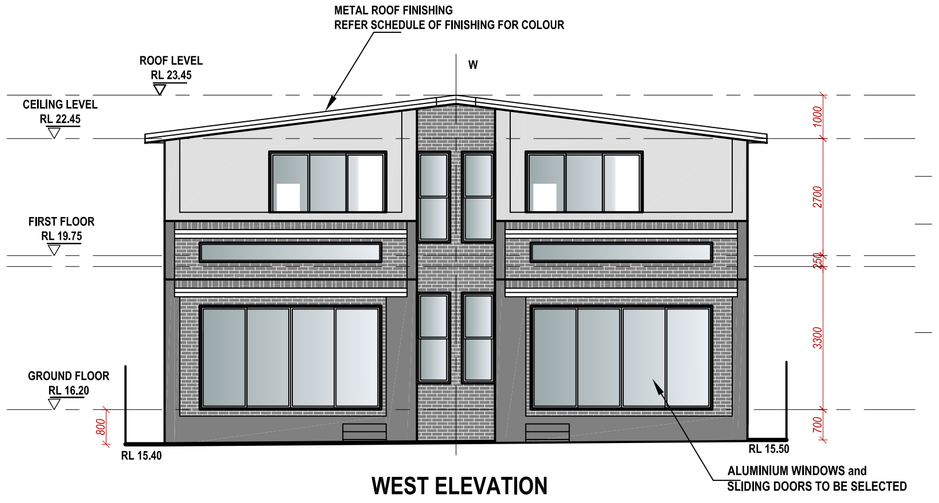
PROPOSED NEW DUPLEX AND GRANNY FLAT

SITE: 16 ELY STREET REVESBY

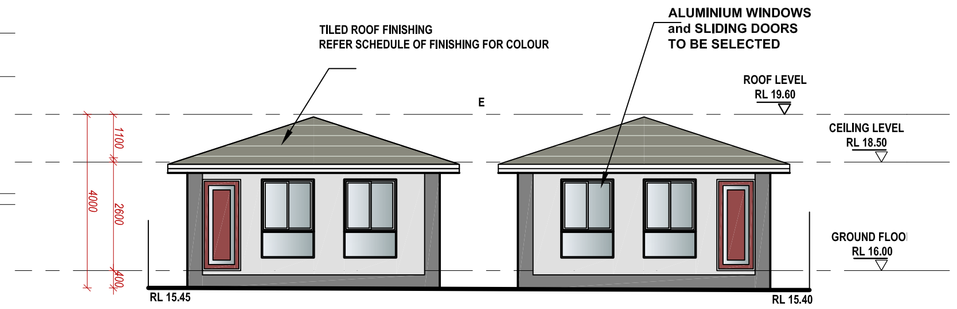
SHEET: ROOF PLAN

COUNCIL: CANTERBURY BANKSTOWN CITY COUNCIL

EAST ELEVATION



WEST ELEVATION



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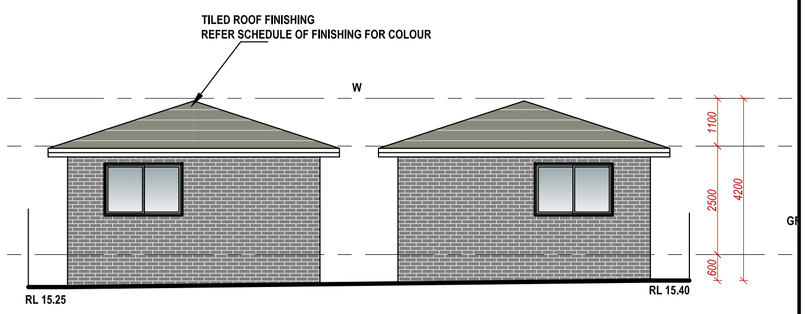

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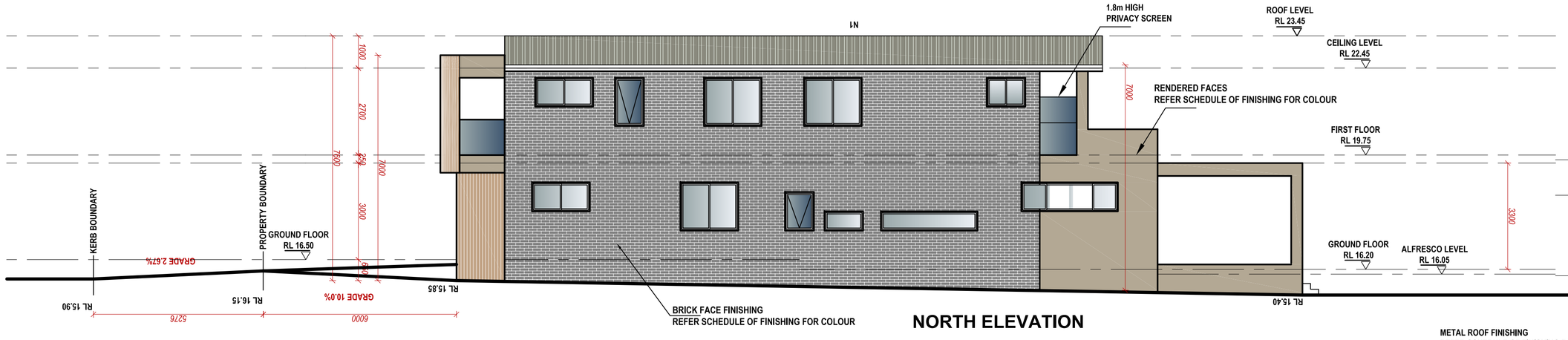
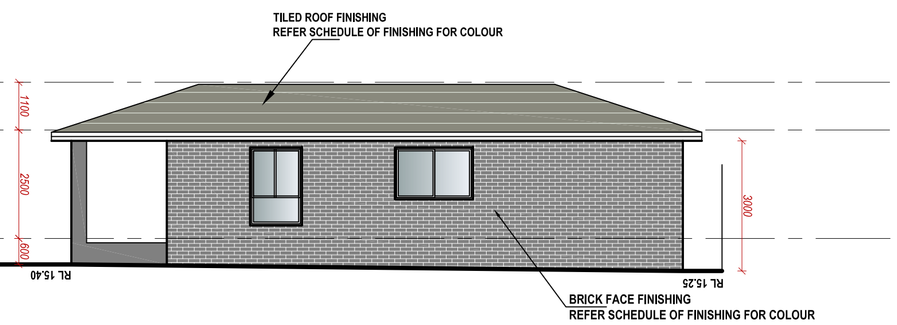
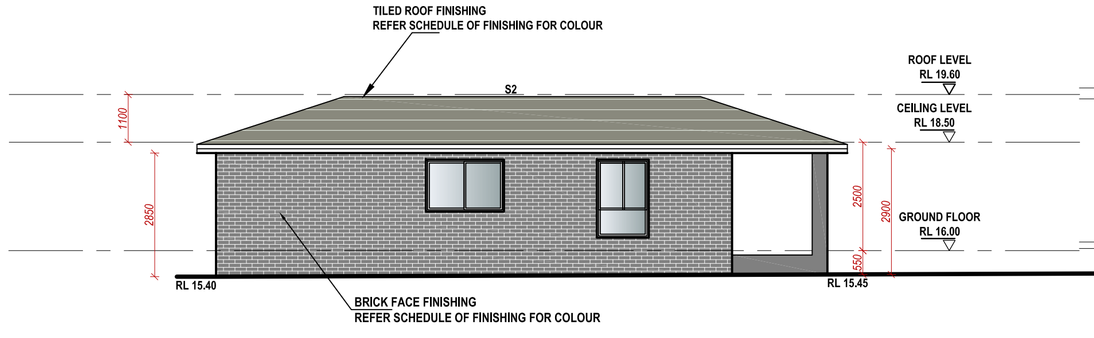
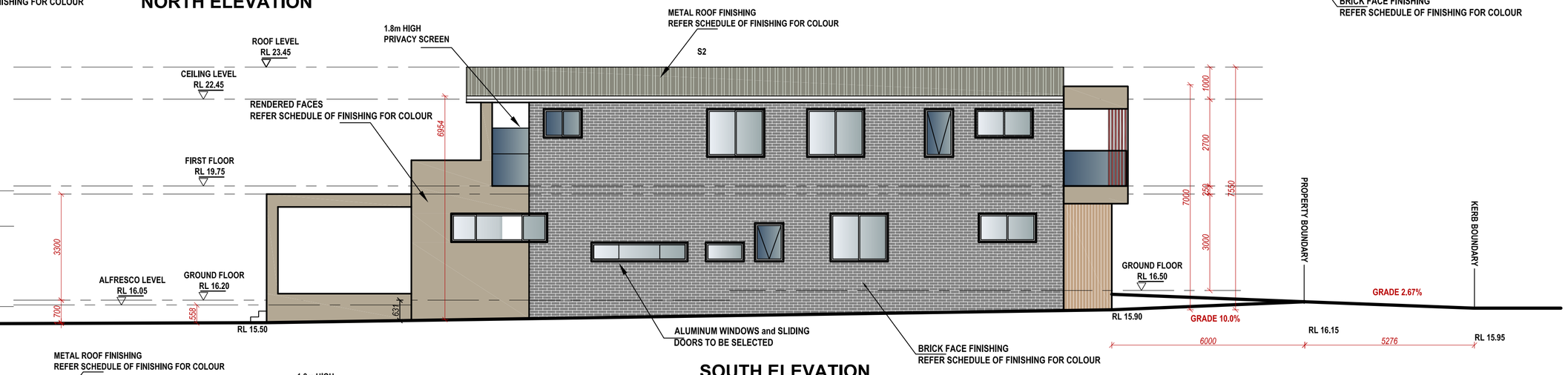


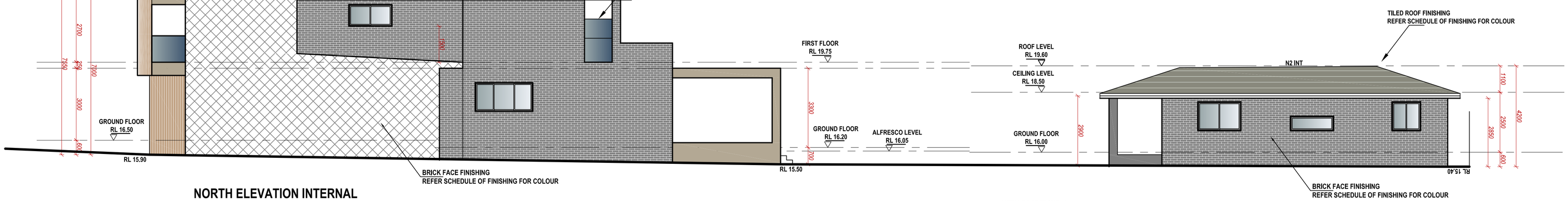
NORTH ELEVATION



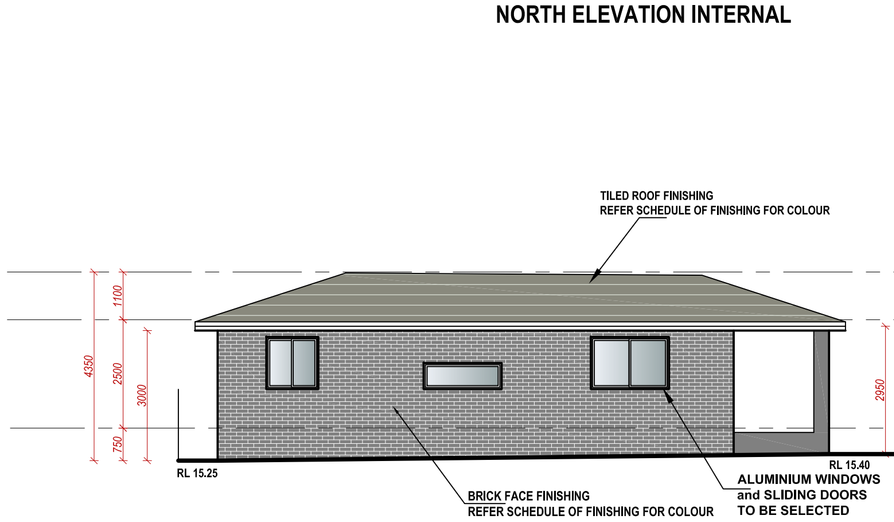


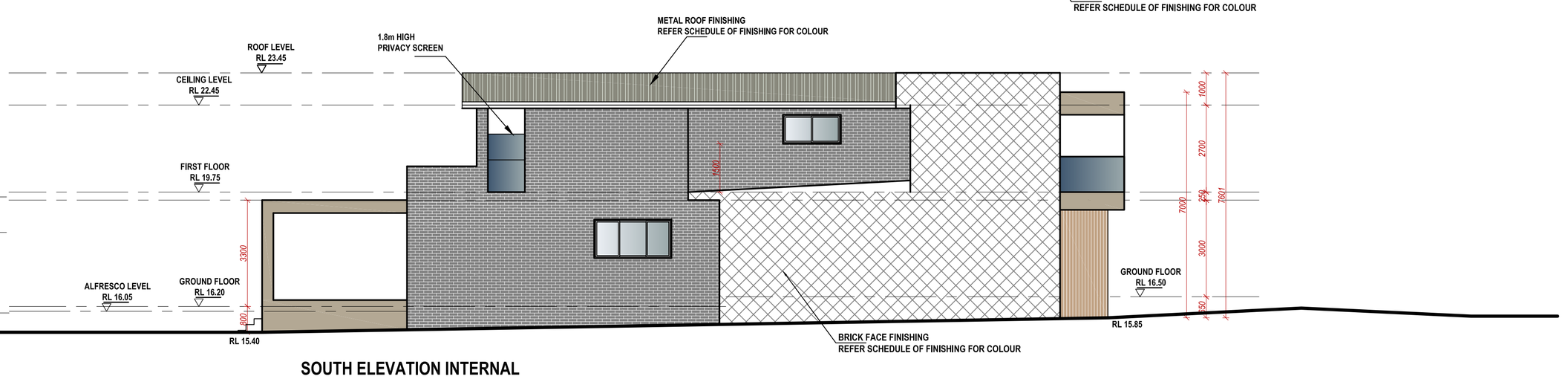


SOUTH ELEVATION



NORTH ELEVATION INTERNAL





SOUTH ELEVATION INTERNAL

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SHEET: SIDES ELEVATION PLAN
COUNCIL: CANTERBURY BANKSTOWN CITY COUNCIL