

Reform Projects

1102 Barrenjoey Rd, Palm Beach

BASIX Assessment Report

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17/03/2022

Report No. ES20200917_00

Commercial In Confidence



Attention	Cassandra Gleeson
Client	Reform Projects
Author	Adriana Segovia
Reviewer	Henky Mantophani
Date	17/03/2022
Revision	01 – New DA
Subject	1102 Barrenjoey Rd, Palm Beach – BASIX Assessment Report

1. SITE APPRECIATION

The proposed development is located at 1102 Barrenjoey Rd, Palm Beach and consists of:

• 6 new residential units

2. BASIX WATER SECTION

The proposed development will meet the mandatory BASIX water target of 40% as long as the water commitments detailed in Table 1 are installed. For details of the requirements necessary to achieve this target, please refer to the BASIX Certificate No. 1186733M_02.

Common Areas and Central	Systems				
Area of Indigenous or low water	Please refer to Appendix B				
<u>species</u>					
	4,000L rainwater tank				
Rainwater collection	Roof collection area - 200m ²				
	Rainwater to be used for Common areas and private				
	landscape irrigation				
<u>Fire Sprinkler</u>	<u>Test water to be diverted to a closed system</u>				
Fixtures	4-star (Water Rating) toilets				
Fixtures	5-star (Water Rating) taps				
Private Dwellings					
	 4-star (Water Rating) showerheads with a flow rate > 				
	6.0L/min & ≤ 7.5L/min				
	4-star (Water Rating) toilets				
Fixtures for apartments	5-star (Water Rating) kitchen taps				
	5-star (Water Rating) bathroom taps				
	4-star (Water Rating) washing machines				
	4-star (Water Rating) dishwashers				



3. BASIX THERMAL COMFORT SECTION

The thermal performance of the development has been evaluated using BERS Pro 2nd Generation software. The BERS Pro computer simulation of residential developments forms part of the Nationwide House Energy Rating Scheme, and is used to assess the potential of a residential development to have low heating and cooling energy requirements once operational.

3.1 MODELLING ASSUMPTIONS

The "base-case" building fabric and glazing and associated thermal performance specifications are described in Table 2 below as these assumptions are based on the nominated preferred construction materials indicated by the architect.

Note: <u>Table 2 must be read in conjunction with Table 3</u>. Table 3 outlines additional thermal enhancements / treatments to meet the mandatory thermal load targets to achieve compliance.

WindowsType 1 Performance glazing0.27 for sliding doors, sliding & fixed windowsWindowsPerformance glazingAndTotal Window System Properties U-value 3.1 & SHGC 0.27 for bifold doors, awning & casement windowsBalcony windows: 50% (i.e. sliding) Bedroom windows: 10% & 50% (BCA D2.24) All other non-balcony windows: 0% (i.e. fixed)Shading deviceNoneShading deviceNoneType 1 Double glazed clear glass with aluminium frameU-value 4.2 & SHGC 0.72Type 2 Performance glazingU-value 2.7 & SHGC 0.24RoofPartial Concrete & Partial light structureInsulation: NoneFloorsConcreteInsulation: See Table 3FloorsConcreteInsulation: See Table 3Common corridors naturally ventilatedYesRecessed downlights assessedNoExhaust fans (kitt-rs, bathrooms, laundry)All assumed to be sealed	Element	Material	Detail	
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	Recessed downlig	ghts assessed	No	
	Exhaust fans (kitc	hens, bathrooms, laundry)	All assumed to be sealed	
Note: Only a ±5% SHGC tolerance to the value stated above & U-value can be greater than or equal to the	Note: Only a ±5%	SHGC tolerance to the value stat	ed above & U-value can be greater than or equal to the	
value stated above	value stated abov	ve		

Table 2: Base Case Assumptions on Construction and Fabric



3.2 BERS PRO RESULTS (THERMAL COMFORT)

The simulated heating and cooling loads per dwelling are summarized in Table 3 below. Where the dwellings have failed to meet the thermal load targets additional thermal enhancements / treatments are provided. This is typically in the form of bulk insulation. These additional thermal treatments are required to pass the BASIX Thermal performance requirements. Please refer to BASIX Certificate No. 1186733M & NatHERS Universal Certificate No. 0005866650 for details.

Unit No.	Additional Treatments Required	Heating Load (MJ/m².yr)	Cooling Load (MJ/m ^{2.} yr)	Stars	Pass/Fail
A1	R2.5 Bulk External Wall Insulation (total wall system R-value Rt2.69), R1.0 Bulk Ceiling Insulation to exposed areas only (total ceiling/roof system R-value Rt1.16), Type 1 windows	29.1	15.8	6.5	Pass
A2	R1.0 Bulk Floor Insulation to exposed floors only (total floor system R-value Rt1.11), R2.5 Bulk External Wall Insulation (total wall system R- value Rt2.69), R1.0 Bulk Ceiling Insulation to exposed areas only (total ceiling/roof system R- value Rt1.16), Type 1 windows	27.6	13.2	6.9	Pass
A3	R1.0 Bulk Floor Insulation to exposed floors only (total floor system R-value Rt1.11), R2.5 Bulk External Wall Insulation (total wall system R- value Rt2.69), R1.0 Bulk Ceiling Insulation to exposed areas only (total ceiling/roof system R- value Rt1.16), Type 1 windows	27.3	15.9	6.7	Pass
A4	R2.5 Bulk External Wall Insulation (total wall system R-value Rt2.69), R1.5 Bulk Ceiling Insulation to exposed areas only (total ceiling/roof system R-value Rt1.66), Type 1 windows, Type 2 skylights	37.3	26.2	5.2	Pass
A5	R2.5 Bulk External Wall Insulation (total wall system R-value Rt2.69), R1.5 Bulk Ceiling Insulation to exposed areas only (total ceiling/roof system R-value Rt1.66), Type 1 windows, Type 2 skylights	37.4	21.4	5.4	Pass

Table 3: BERS Pro Thermal Loads



4. BASIX ENERGY SECTION

The proposed development will meet the mandatory BASIX Energy target as long as the energy commitments detailed in Table 4 are installed.

	Component	Commitment
	Hot Water System	Individual HWS below
		All lifts to use Gearless traction with VVVF motor servicing all
S	<u>Lifts</u>	levels
Common Areas and Central Systems	<u>Ventilation</u>	 Car park: Ventilation (supply & exhaust) with a CO monitor & VSD fan Garbage Rooms: Ventilation (exhaust only), continuous Plant/Service Rooms: Ventilation (exhaust only), thermostatically controlled Hallways & lobbies: No mechanical ventilation
Common Areas c	<u>Lighting</u>	 Car park: Fluorescent lighting with time clocks and motion sensors Lift Cars: LED lighting connected to lift call button Garbage Rooms: LED lighting with motion sensors Plant/Service Room: LED lighting with manual on/off switch Hallways & lobbies: LED lighting with motion sensors + time clock
	<u>Alternative Energy</u> <u>Supply</u>	 Photovoltaic system of minimum rated electrical output of 3.2kW peak
	Hot Water System	Individual Instantaneous Gas Hot Water System with 6 Stars Rating
	<u>Ventilation</u>	• Kitchen, Bathroom & Laundry Exhaust: Individual fan, ducted to roof or façade, with manual on/off switch
Private Dwellings	Heating & Cooling	 Heating: Living & Beds to have individual 3-star (average zone) 1-phase air-conditioning Cooling: Living & Beds to have individual 3-star (average zone) 1-phase air-conditioning <u>Must be day/night zoned</u>
Privat	<u>Lighting</u>	 At least 80% of light fittings (including the main light fitting) in all hallways, laundries, bathrooms, kitchens, bedrooms and living areas to use Fluorescent or LED lights with dedicated fittings¹
	<u>Other</u>	 Gas cook top and electric oven Well ventilated fridge space Install 4-star (energy rating) dishwashers Install 2-star (energy rating) dryers

Table 4: BASIX Energy Commitments

¹ Definition of dedicated fittings is a light fitting that is only capable of accepting fluorescent or LED (Light Emitting Diode) lamps. It will not accept incandescent, halogen or any other non-fluorescent or non-LED lamps.



5. CONCLUSION

The proposed development has been assessed to optimise its thermal performance (passive and fabric design) using the Nationwide House Energy Rating scheme (NatHERS) and also been assessed in terms of its ability to conserve water and minimise energy consumption through BASIX Tool.

With the commitment recommendations contained within this report the proposed development is able to meet BASIX requirements and is BASIX compliant.

For further details, please refer to the BASIX Certificate No. 1186733M_02 provided.

APPENDIX A - ARCHITECTURAL DRAWINGS

The building sustainability performance assessment carried out in this report was based on the following architectural drawings supplied by Rob Mills Architecture & Interiors received on 16th March 2022.

ARCHITECTURAL DRAWING LIST				ARCHITECTURAL DRAWING LIST	
Sheet No.	Sheet Name	Current Rev.	Sheet No.	Sheet Name	Current Rev.
DA.00	COVER PAGE	A	DA.08	PROPOSED SECOND FLOOR PLAN	A
DA.01	SITE PLAN ANALYSIS	A	DA.10	PROPOSED WEST ELEVATION	A
DA.02a	MASSING HEIGHT CONTROL	A	DA.11	PROPOSED ELEVATION - NORTH, SOUTH & EAST	A
DA.02b	MASSING DCP CONTROL	A	DA.15	SECTIONS	A
DA.03	DEMOLITION PLAN	A	DA.16	SECTIONS	A
DA.04	PROPOSED SITE PLAN / ROOF PLAN	A	DA.50	SHADOW STUDIES_9AM 21ST JUNE	A
DA.05	PROPOSED BASEMENT PLAN	A	DA.51	SHADOW STUDIES_12PM 21ST JUNE	A
DA.06	PROPOSED GROUND FLOOR PLAN	A	DA.52	SHADOW STUDIES_3PM 21ST JUNE	A
DA.07	PROPOSED FIRST FLOOR PLAN	A	DA.60	MATERIALS AND FINISHES	A
			DA.70	GFA & LANDSCAPE CALCULATIONS	A



APPENDIX B – LANDSCAPING AREAS

В	ASIX for Multi Dwellir	ngs - Landscape Chec	klist		
WA	TER - Central systems a	ind common areas			
	Common area landscap				Notes for assessor
		Please fill out mand	atory fields marked i	in a *	
	Number of Unit-Buildings		v		
	Number of Onit-Buildings	·	<u> </u>		
		Building Name(s)		"Building 1"	
		Common area of lawn (m²)	*	312.1	
		Common area of garden			
		(exlcuding lawn) (m²) *		94.6	
		Common area of			
		indigenous species (m²)*		251.7	
_					
WA	TER - dwellings				
	Private area landscape	•			Notes for assessor
	For each dwelling, gath	er the following info	mation:		
	- or outer unening, gut		<u>Indion.</u>		
	How many units have private]	
	garden & lawn. Please list these separately below		5		
				1	
		T			
	Unit No.	Total area of Private	Total area of Private	Area of indigenous	
100		garden (m²)	lawn (m²)	species (m²)	
	A1	garden (m²) 50.7	lawn (m²) 23.3	species (m²) 9.32	
	A2	garden (m²) 50.7 26.8	lawn (m²) 23.3 4	species (m²) 9.32 1.6	
	A2 A3	garden (m²) 50.7 26.8 58.1	lawn (m²) 23.3 4 36.8	species (m²) 9.32 1.6 14.8	
	A2 A3 A4	garden (m²) 50.7 26.8 58.1 38.1	lawn (m²) 23.3 4 36.8 0	species (m²) 9.32 1.6 14.8 0	
	A2 A3	garden (m²) 50.7 26.8 58.1	lawn (m²) 23.3 4 36.8	species (m²) 9.32 1.6 14.8	
	A2 A3 A4	garden (m²) 50.7 26.8 58.1 38.1	lawn (m²) 23.3 4 36.8 0	species (m²) 9.32 1.6 14.8 0	
	A2 A3 A4	garden (m²) 50.7 26.8 58.1 38.1	lawn (m²) 23.3 4 36.8 0	species (m²) 9.32 1.6 14.8 0	
	A2 A3 A4	garden (m²) 50.7 26.8 58.1 38.1	lawn (m²) 23.3 4 36.8 0	species (m²) 9.32 1.6 14.8 0	
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	A2 A3 A4	garden (m²) 50.7 26.8 58.1 38.1	lawn (m²) 23.3 4 36.8 0	species (m²) 9.32 1.6 14.8 0	
	A2 A3 A4	garden (m²) 50.7 26.8 58.1 38.1	lawn (m²) 23.3 4 36.8 0	species (m²) 9.32 1.6 14.8 0	
	A2 A3 A4	garden (m²) 50.7 26.8 58.1 38.1	lawn (m²) 23.3 4 36.8 0	species (m²) 9.32 1.6 14.8 0	