Fobupu Pty Ltd

10-14 Lethbridge St Penrith

BASIX Assessment Report

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Subject	10-14 Lethbridge St Penrith – BASIX Assessment Report

1. SITE APPRECIATION

The proposed development is located at 10-14 Lethbridge St Penrith and consists of:

- Basement car parking
- 36 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. 1257597M.

Table 1: BASIX Water Commitments

Common Areas and Central Systems	
Area of Indigenous or low water species	• **See Appendix B**
Rainwater collection	• **Minimum total of 5,000L rainwater tank** • Roof collection area – minimum total of 500m^2 • Rainwater to be used for all common area + private landscaping irrigations only
Fixtures for Common Area	• 4-star (Water Rating) toilet • 6-star (Water Rating) tap
Fire Sprinkler Test Water	• No commitment is required for storing test water
Private Dwellings	
Fixtures for each unit	• 4-star (Water Rating) showerheads with a flow rate > 4.5L/min & ≤ 6.0L/min • 4-star (Water Rating) toilet • 6-star (Water Rating) kitchen tap • 6-star (Water Rating) bathroom tap • 5-star (Water Rating) dishwasher

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

Table 2: Base Case Assumptions on Construction and Fabric

Element	*Material*	*Detail*
External walls	Tilt up Concrete	**Insulation: R2.5 Bulk Insulation**
		Medium to Dark colour
Internal walls	Plasterboard on studs	
Party walls	Hebel Power Panel	To corridors, neighbour
	Hebel Power Panel	To lift core, fire stairs and services
Windows	**Type 1**	Total Window System Properties U-value 6.7 & SHGC 0.7.0 **for sliding doors, sliding & fixed windows** **OR** Total Window System Properties U-value 6.7 & SHGC 0.57 **for awning windows & Glass doors**
	Type 2	**Total Window System Properties U-value 4.9 & SHGC 0.33**
	Type 3	**Total Window System Properties U-value 5.6 & SHGC 0.41**
	Window Operability	Bedroom windows: **10%** (BCA requirement) **As per plans & elevations**
	Shading device	**As per plans & elevations**
Skylight	Single Glazed Clear	**See Table 3**
Roof	Concrete roof	**Insulation: None**
		Medium colour
Ceilings	Plasterboard	**Insulation: See Table 3**
Floors	Concrete	**Insulation: See Table 3**
		Wet areas only: Tiles
		Bedrooms: Carpet
		Living/Dining/Kitchen: Timber
Exhaust fans (kitchens, bathrooms, laundry)		**All assumed to be sealed**

3.2 BERS PRO RESULTS (THERMAL COMFORT)

The simulated heating and cooling loads per dwelling are summarised 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.

Table 3: BERS Pro Thermal Loads

Unit No.	*Additional Treatments Required*	*Heating Load (MJ/m².yr)*	*Cooling Load (MJ/m².yr)*	*Stars*	*Pass/Fail*
G01	R0.5 Bulk Floor Insulation	52.2	29.9	6.2	Pass
G02	R0.5 Bulk Floor Insulation	47.3	30.4	6.4	Pass
G03	R0.5 Bulk Floor Insulation	50.6	31.2	6.3	Pass
G04	R1.0 Bulk Floor Insulation, R1.5 Bulk Insulation to exposed ceiling areas only	57.9	45.2	5.3	Pass
G05	R1.0 Bulk Floor Insulation, R1.5 Bulk Insulation to exposed ceiling areas only, **Type 2 Windows to all glazing areas except Bedroom window use Type 1**	62.7	52.2	4.9	Pass
101	None	21.9	43.8	7.0	Pass
102	None	15.4	38.3	7.6	Pass
103	None	20.2	41.1	7.2	Pass
104	None	23.7	30.9	7.5	Pass
105	R0.5 Bulk Floor Insulation to exposed areas only	62.8	46.5	5.1	Pass
106	R1.1 Bulk Floor Insulation adj to carpark/basement	63.1	52.5	4.9	Pass
107	R1.3 Bulk Floor Insulation	62.7	46.0	5.1	Pass
201	None	18.9	37.3	7.4	Pass
202	None	15.1	35.3	7.7	Pass
203	None	20.6	40.7	7.2	Pass
204	None	24.2	30.2	7.5	Pass
205	None	41.8	48.2	5.9	Pass
206	None	45.3	61.7	5.2	Pass
207	None	25.3	35.4	7.2	Pass
208	R0.5 Bulk Floor Insulation to exposed areas only	39.6	39.5	6.4	Pass
301	R1.5 Bulk Ceiling Insulation to exposed areas only	33.4	48.3	6.3	Pass
302	R1.5 Bulk Ceiling Insulation to exposed areas only	30.1	45.8	6.6	Pass
303	R1.5 Bulk Ceiling Insulation to exposed areas only	40.7	52.6	5.7	Pass
304	R1.5 Bulk Ceiling Insulation to exposed areas only	41.7	35.1	6.5	Pass
305	R1.5 Bulk Ceiling Insulation to exposed areas only	53.9	53.3	5.2	Pass
306	R1.5 Bulk Ceiling Insulation to exposed areas only	54.6	63.6	4.8	Pass
307	R1.5 Bulk Ceiling Insulation to exposed areas only	46.4	42.6	5.9	Pass
308	R1.5 Bulk Ceiling Insulation to exposed areas only	42.1	51.6	5.7	Pass
401	None	22.2	37.8	7.3	Pass
402	None	22.8	38.9	7.2	Pass
403	None	41.3	38.2	6.4	Pass
404	None	45.8	45.4	5.8	Pass
501	R2.5 Bulk Ceiling Insulation	38.3	49.6	5.9	Pass
502	R2.5 Bulk Ceiling Insulation	38.6	50.9	5.9	Pass
503	R2.5 Bulk Ceiling Insulation	53.2	60.5	4.9	Pass
504	R2.5 Bulk Ceiling Insulation, **Type 3 Windows to all Sliding Doors (all other widows use Type 1)**	59.9	63.0	4.6	Pass

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.

Table 4: BASIX Energy Commitments

Component		*Commitment*
Common Areas and Central Systems	Hot Water System	• **Centralised Gas-fired boiler** with internal piping insulation of R0.6 (~25mm)
	Lifts	• All lifts to use Gearless traction with VVVF motor servicing all levels
	Alternative Energy Supply	• **Not Required**
	Others	• **None**
	Ventilation	• Carpark: Ventilation (supply & exhaust) with a CO monitor & VSD fan • Plant Rooms: Ventilation (exhaust only), thermostatically controlled • Garbage Rooms: Ventilation (exhaust only) • Hallways & lobbies: No mechanical ventilation
	Lighting	• Carpark: Fluorescent lighting with time clocks & motion sensors • Lift Cars: LED lighting, connected to Lift Call buttons • Plant Rooms: LED lighting with manual on/off switch • Garbage Rooms: LED lighting with Motion Sensor • Hallways & lobbies: LED lighting with time clocks & motion sensors
Private Dwellings	Hot Water System	• **Central HWS above**
	Ventilation	• Kitchen Exhaust: Individual fan, ducted to roof or façade, with manual on/off switch • Bathroom Exhaust: Individual fan, ducted to roof or façade, with manual on/off switch • Laundry Exhaust: Individual fan, ducted to roof or façade, with manual on/off switch
	Heating & Cooling	• **Heating:** Living & Beds to have individual 1-phase air-conditioning with 2-star (average zone) rating • **Cooling:** Living & Beds to have individual 1-phase air-conditioning with 2-star (average zone) rating
	Lighting	• 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 fittings [1]

[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.

Component		Commitment
	Other	• Install Gas cook top and electric oven in all units • Install 3.5-star (energy rating) Dishwasher in all units • Install 1.5-star (energy rating) Dryer in all units

5. CONCLUSION

The proposed development has 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 will be able to meet BASIX requirements and is BASIX compliant.

For further details, please refer to the BASIX Certificate No. 1257597M provided.

APPENDIX A - ARCHITECTURAL DRAWINGS

The building sustainability performance assessment carried out in this report was based on the following architectural drawings supplied by PBD received on 11 November 2021.

DRAWING SCHEDULE

DA 000	COVER SHEET
DA 001	PROJECT SUMMARY
DA 010	SITE PLAN
DA 011	SITE ANALYSIS
DA 100	BASEMENT 2 PLAN
DA 101	BASEMENT 1 PLAN
DA 102	GROUND FLOOR PLAN
DA 103	LEVEL 1 PLAN
DA 104	LEVEL 2 - 3 PLAN
DA 105	LEVEL 4 - 5 PLAN
DA 106	ROOF PLAN
DA 200	ELEVATIONS - NORTH
DA 201	ELEVATIONS - WEST
DA 202	ELEVATIONS - SOUTH
DA 203	ELEVATIONS - EAST
DA 300	SECTION A
DA 301	SECTION B
DA 400	MATERIAL & FINISHES SCHEDULE
DA 410	3D PERSPECTIVES - SHEET 1
DA 411	3D PERSPECTIVES - SHEET 2
DA 500	LANDSCAPE CALCULATION
DA 510	CROSS VENTILATION DIAGRAM
DA 520	SOLAR ACCESS DIAGRAM
DA 530	PRIVATE AND COMMUNAL OPEN SPACE
DA 540	ADAPTABLE UNITS
DA 550	SHADOW DIAGRAMS
DA 560	STORAGE CALCULATIONS - SHEET 1
DA 561	STORAGE CALCULATIONS - SHEET 2
DA 570	HEIGHT PLANE DIAGRAM

APPENDIX B – LANDSCAPING AREAS

WATER - Central systems and common areas

Common area landscape

Please fill out mandatory fields marked in a *

Number of Unit-Buildings	
Building Name(s)	"Building 1"
Common area of lawn (m²) *	206.5
Common area of garden (excluding lawn) (m²) *	343.4
Common area of indigenous species (m²) *	172

WATER - dwellings

Private area landscape

For *each dwelling*, gather the following information:

How many units have private garden & lawn. Please list these separately below: 26

Unit No.	Total area of Private garden (m²)	Total area of Private lawn (m²)	Area of Indigenous species (m²)
G.01	4.5	21	2.2
G.02	5	21	2.5
G.03	12	25	6
G.04	8.8	0	4.4
G.05	5.3	0	2
1.01	1.4	0	0.7
1.02	1.4	0	0.7
1.03	1.2	0	0.6
1.04	0.8	0	0.4
1.07	0.8	0	0.4
2.01- 3.01	2.8	0	1.4
2.02- 3.02	2.8	0	1.4
2.03- 3.03	2.4	0	1.2
2.04- 3.04	2	0	1
2.07- 3.07	2	0	1
2.08- 3.08	2.4	0	1.2
4.01- 5.01	2.4	0	1.2
4.02- 5.02	2.4	0	1.2

Completed by: Eileen Ng
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Date completed: 10 / 11 / 2021