Ecove Group

98 Bennelong Road, Sydney Olympic Park

ESD report for DA submission

Rev C | 20 August 2015

Job number

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Document Verification

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		Description			
			Prepared by	Checked by	Approved by
		Name	Tim Elgood	Alexander Hespe	Tim Elgood
		Signature			
				Issue Document Verification with Document	✓

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Executive Summary

The proposed development at Sydney Olympics Park aimed to set a new benchmark for fresh air ventilation, daylight and comfort within a residential tower. The concept was developed at the early design competition stages and like all good concepts it has remained robust throughout the design period.

The following points summarise the sustainability strategies integrated into the design:

- **BASIX comfort**- The project is using low e double glazing that has a high visual light transmission and excellent winter and summer performance. The average comfort score for all units means they are using 70% less energy to cool and 37% less energy to heat the units then the allowable BASIX caps
- **BASIX water**- we have achieved a 20% improvement on the minimum BASIX water score. We have connected to the WRAMS system for non-potable water supplies and used a rainwater tank to provide recycled water for irrigation.
- **BASIX energy-** we have achieved the minimum compliance of a 20% reduction for the energy systems which is difficult to achieve in high rise residential towers. LED and fluorescent lighting has been used throughout with smart automated lighting controls in all common areas.
- **Materials:** We have engineered an alternative performance fire strategy that has eliminated relief air ductwork throughout the building by using the vertical gardens as a path for relief air in a fire situation. Lightweight Hebel walls instead of concrete block work, where possible, to reduce embodied carbon considerably.
- **Air quality:** Low VOC materials have been used throughout for carpets and paints.

We have also rated the development using the Green Star tool for multi-unit residential buildings and a combination of the above strategies means we can achieve the equivalent of a 4 Green Star rating for the project.

1 Introduction

This section of the report describes the objectives established and the methodology used to achieve the sustainability aspirations for the project.

1.1 From competition to completion

The residential tower proposed at 98 Bennelong Road is being developed by Ecove Group and will consist of approximately 370 apartments. Arup have been involved with Ecove Group and the project over a series of EOI's and design competitions for the site. The competition strategies have remained robust over the design period with the integration of garden slots to provide increased amenity to the occupants as well as high levels of fresh air into the apartments and corridors.

Arup's role on the project is to help develop a residential tower with excellent levels of fresh air quality, comfort and daylight as well as achieving high performance in waste, water and material management.

The intent of this report is not just to describe the sustainability strategies integrated into the design but to demonstrate a mechanism to ensure that the strategies are delivered throughout design, construction and eventually operation.

1.2 Methodology

The report has been set out to respond to the key headings in the SOPA Environmental Guidelines (2008) and the 2030 SOPA Master Plan documents. The report has been set out with the following key headings:

1. BASIX strategy
2. Green Star equivalency strategy
3. Energy Strategy.
4. Water Strategy.
5. Waste Management Strategy.
6. Materials Selection Strategy.
7. Indoor Environmental Quality

2 BASIX strategy

The BASIX assessment is divided into three sections, each independently measuring the efficiency of the development. These are Water, Thermal Comfort and Energy. BASIX requires a minimum target of 40% for the Water section. A BERS pass or fail is required for the thermal comfort section and a minimum required target of 20% for the energy section.

2.1 Water

The proposed development has achieved the BASIX Water target of 40% and the project exceeds this by achieving 47%. The water usage of the development is calculated based on the number and efficiency of permanent fixtures and appliances such as: taps, showerheads and toilets, the dish washer and clothes washing machine.

2.2 Energy

The proposed development has achieved the energy target of 20% to pass this section. The energy usage of the development is calculated based on the efficiency of fixed appliances that will be used. This includes the air conditioning system, hot water system, lighting, exhaust fans and the cook top, oven, and clothes drying facilities.

2.3 Comfort

Thermal Comfort targets are set by the department of planning in the form of heating and cooling caps. The buildings thermal physics is measured using BERS thermal performance assessment tools. This equates an expected level of energy consumption to heat and cool each dwelling per annum expressed in MJ (mega joules)/m^2 floor area. Each unit has individual heating and cooling caps and a weighted average heating and cooling load for the whole development. The weighted average caps are a lot harder to achieve than the individual unit caps.

The average score for all units means they are using 70% less energy to cool and 37% less energy to heat the units then the allowable BASIX caps.

2.4 BASIX strategy

The following table summarises the BASIX strategy. The BASIX certificates are included in Appendix A.

Mechanical	Item
Bathroom ventilation	- Individual extract system per apartment controlled via light switch with run on timer.
Kitchen canopy	- Each apartment to have individual kitchen extract ducted horizontally to the façade of that unit.
Air conditioning	- Individual air cooled splits- inverter driven EER 3 to 3.5. Separate zoning/ control of living spaces and bedrooms. Entrance lobby to be air conditioning.
Laundry ventilation	- Each apartment to have individual to be horizontally exhausted to façade of that unit.
Ancillary ventilation	- Corridors and entrance lobby naturally ventilated. - All other ancillary mechanical ventilation, if not 24hr/7 day operation to have time/ temperature control depending on function.
Car park ventilation	- Mechanical supply and exhaust (code compliant CO2 sensors).
Electrical	
Common area lighting	- Fluorescent lighting throughout. Controlled via occupancy sensors. Review common area lighting controls strategies further- Arup and HR.
Apartment lighting	- 80% of lighting in apartments via fluorescent or LED lighting.
Hydraulics	
WRAMS (recycled water)	- Recycled water from WRAMS to be used for non-potable water supply with rainwater harvesting for irrigation and top up of WRAMS system if required.
Hot water	- Domestic hot water via centralised gas fired system with pumped secondary return.
Appliances	- 3 star shower heads - 4 star WC flushing - 3 star bathroom taps - 3 star kitchen taps - 4 star common area taps and WC's and 3 star common area shower

Architectural	
Dish washer	- 5 star energy/ 3.5 star water
Clothes dryer	- 2 star energy
Oven	- Gas cook top with electric oven.
Insulation	- Façade spandrel R1.5. - Roof R2.0 - Floor insulation with apartments over car park and lobby R2.0.
Glass	Doors / windows: - Aluminium framed single clear glazing to internal windows that open to balconies: - U-Value: 6.57 (equal to or lower than) - SHGC: 0.74 (+ or – 10%) Aluminium framed double clear glazing to curtain walls & glazing to balcony edge: - U-Value: 4.11 (equal to or lower than) - SHGC: 0.58 (+ or – 10%) Given values are NFRC, total window values
Lifts	Gearless traction with VVVF motor.

3 Green Star equivalency

The project demonstrates a number of sustainability innovations that is inherent in the excellent architectural design such as opening the building up to allow for fresh air and daylight deep into the core of the building. This and the following key sustainability strategies have resulted in the project achieving a high score when you assess it with the Green Building Council's multi-unit residential tool:

3.1 Management

- Provision of a waste management plan and a target of 90% recycling of construction waste
- A commitment to provide ongoing building tuning of services throughout the first year.
- Arup are accredited Green Star professionals.
- Building users guides are being developed to include descriptions on the sustainable features if the project.

3.2 Indoor Environmental Quality

- Double glazing low e glass with high visual light transmission and good winter and summer comfort.
- Excellent noise level attenuation with double glazing.
- Low VOC paints have been specified with Low Sheen 1 gram per litre - TVOC.
- Low VOC carpets- natural wool and low TVOC content tested at less than 0.1mg/m^3.
- Natural ventilation of common area corridors via automated louvres controlled from a series of weather stations.
- Louvres on balconies for windy corner apartments to improve amenity and usage of the balconies.
- The provision of communal garden spaces throughout the tower to encourage a community feel and social interaction.

3.2.1 Cross Ventilation

Computational fluid dynamics analysis has been performed to assess the proposed cross-ventilation strategy. Corner apartments achieve cross-ventilation through having external openings on different façade aspects. Additional cross-ventilated apartments are provided by utilising a plenum connected to the slot balconies.

Figure 1 Cross-ventilation apartments; dual aspect (grey) and via plenum (blue)

To confirm the cross-ventilation for apartments connected to the slot balcony and plenum, CFD was used to determine the pressure differential across the two facades and determine if there is sufficient pressure to drive ventilation across through the plenum. An output from the analysis is shown in Figure 2, shades of blue indicate negative pressure and shade of yellow/orange are positive pressures.

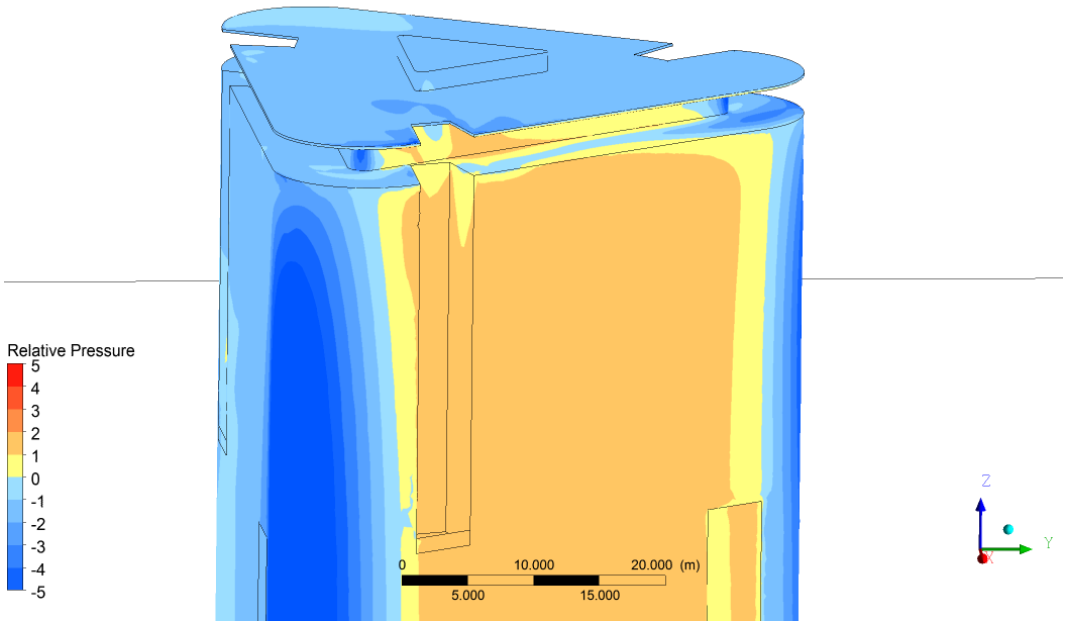

Figure 2 Pressure distribution across façade

Based on the pressure differential available, the sizing of plenums and openings at the slot balconies has been made to allow cross-ventilation of the apartments and the corridors.

3.3 Energy

- Natural ventilation of common area corridors via louvres.
- Efficient dishwashers and dryers provided throughout.
- BERS rating for BASIX achieving 54.5% less energy to cool and 18.5% less energy to heat the units then the allowable BASIX caps.
- Gas fired hot water throughout.
- LED and fluorescent lighting throughout with occupancy sensors in common areas
- Inverter controlled zoned AC control to apartments.
- Dedicated ventilation systems for WC's and kitchens rather than centralised systems that run 24 hours a day/ 7 days a week.

3.4 Water

- Recycled water from WRAMS to be used for non-potable water supply with rainwater harvesting for irrigation and top up of WRAMS system if required.
- Water efficient appliances throughout: 3 star shower heads, 4 star WC flushing, 3 star bathroom taps, 3 star kitchen taps, 4 star common area taps and WC's and 3 star common area shower.
- 3.5 star dishwasher.
- Air cooled air conditioning- no cooling towers used on the project.

3.5 Waste Management

- Waste chute for general waste.
- Recycling waste facilities provided on each floor.
- Any green waste will be collected and removed from site by the maintenance contractor

3.6 Materials

- All structural steel work, reo bars and mesh will have post-consumer recycled content.
- We are assessing a number of green concrete mixes with lower cement content that does not impact the construction period.
- Use of lower embodied Hebel walls instead of concrete block work.

- All timber will be sourced from environmentally- responsible forest management practices.
- Reduction in mechanical ventilation to corridor spaces due to natural ventilation.
- We have resolved fire and ventilation issues through an alternative performance based approach that has eliminated smoke extract ductwork in the building.

Appendix A: BASIX certificates and approved plans

Appendix A

BASIX Certificates + Approved plans

Efficient Living Pty Ltd
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Arup
Proposed Residential Development

To be built at:

Site 68
Sydney Olympic Park

BASIX Assessment

Issue No.	Description	Author	Date
DRAFT	Draft assessment for review	DA/TMC	09/09/14
No. 01	BASIX Certification	DA/TMC	18/09/14
No. 02	Ventilation change to bathrooms & laundries	TMC	19/09/14
No. 03	Laundry & bathroom ventilation interlocked to light	TMC	19/09/14
No. 04	Additional units added to BASIX and thermal comfort assessment of new units	DA/TMC	25/05/15

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Arup. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our client's instructions and preferred building inclusions.

PREPARED FOR :	PREPARED BY :
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INTRODUCTION

Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at Site 68, Sydney Olympic Park.
Heating and cooling loads for the development have been determined using BERS thermal simulation software. The report is based on the architectural drawings provided by Bates Smart Architects. For further details, refer to the individual BASIX certificates and Efficient Living Inclusions Summary respectively.

ANALYSIS

The BASIX assessment is divided into three sections, each independently measuring the efficiency of the development. These are Water, Thermal Comfort and Energy.

BASIX requires a minimum target of 40% for the Water section. A BERS pass or fail is required for the thermal comfort section and a minimum required target of 20% for the energy section.

WATER

The proposed development has achieved the BASIX Water target of 40%.
The water usage of the development is calculated based on the number and efficiency of permanent fixtures and appliances such as: taps, showerheads and toilets, the dish washer and clothes washing machine.
The size of the rain tank and number of connections has a huge impact on your water score as does the area of gardens and lawns and wether or not low-water plant species are incorporated.

THERMAL COMFORT

Thermal Comfort targets are set by the department of planning in the form of heating and cooling caps. The buildings thermal physics is measured using BERS thermal performance assessment tools. This equates an expected level of energy consumption to heat and cool each dwelling per annum expressed in MJ (mega joules) per square meter of floor area.

Each unit has individual heating and cooling caps and a weighted average heating and cooling load for the whole development. The weighted average caps are a lot harder to achieve than the individual unit caps.

ENERGY

The proposed development has achieved the energy target of 20% to pass this section.
The energy usage of the development is calculated based on the efficiency of fixed appliances that will be used. This includes the air conditioning system, hot water system, lighting, exhaust fans and the cook top, oven, and clothes drying facilities.

Site 68 - Inclusions Summary

All units in units at Site 68 have reached the targets as set for new dwellings in NSW. The inclusions as outlined in the table below have been incorporated in each unit to allow them to reach their environmental sustainability targets.

Construction general	
Glazing	**Doors / windows:** Aluminium framed **single clear** glazing to internal windows that open to balconies / winter gardens U-Value: 6.57 (equal to or lower than) SHGC: 0.74 (+ or – 10%) Aluminium framed **double clear:** o Glazing to curtain walls, o Glazing to balcony edge that encloses to become a winter garden o Top floor units that glazing is adjacent to balconies *Please see image of window mark-up attached which indicates typical location of window types.* U-Value: 4.11 (equal to or lower than) SHGC: 0.58 (+ or – 10%) Given values are NFRC, total window values
Roof / ceiling insulation	**Roof:** Concrete roof - No insulation No colour nominated **Ceiling:** Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above Note: It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area. If down lights are proposed at a later stage, BCA loss of insulation calculations will be required.
Wall / floor insulation	**External Wall:** Lightweight cladding to all external walls with R1.5 bulk insulation No colour nominated **Internal walls within units:** Plasterboard on studs - no insulation **Inter-tenancy walls / corridor:** 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation **Floors:** Concrete - R2.0 insulation to areas of open floor *Any suspended floor with an in-slab heating or cooling system must be insulated around the vertical edge of its perimeter and underneath the slab with insulation having an R-value of not less than 1.0.* **Floor coverings:** 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans All 3 & 4 bed apartments tiled throughout

Thermal Comfort - The average score for all units means they are using:
70% less energy to cool and 37% less energy to heat the units then the allowable BASIX caps

BASIX Water inclusions – Score 40 / 47	
Fixtures (within units)	Showerheads: 3 star (>7.5 but <=9 L/min) high flow Toilets: 4 star Kitchen taps: 3 star Bathroom vanity taps: 3 star
Appliances (within units)	Dishwashers: 3.5 star
Fixtures (common areas)	Showerheads: 3 star (>7.5 but <=9 L/min) high flow Toilets: 4 star Bathroom vanity taps: 4 star
Reticulated alternative water	Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)
Fire sprinkler	Not contained in a closed loop for test water

BASIX Energy inclusions – Score Pass 20 / 20	
Central hot water system	Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.
Lift motors	All lifts to have gearless traction with VVVF motor.
Appliances & other efficiency measures (within units)	Gas cooktop & electric oven Dishwashers: 4.5 star Clothes dryers: 3.5 star Clothes washers: 3.5 star
Heating & cooling (within units)	All units to have individual single phase reverse cycle air conditioning: 3.0 - 3.5 EER – Cooling 3.0 - 3.5 EER - Heating Day/night zoned Electric floor heating to living areas of all 3 & 4 bedroom units
Artificial lighting (within units)	Fluorescent or LED lighting to be provided throughout in all units
Ventilation systems (within units)	Bathroom ventilation: Individual fan, ducted to roof or façade – interlocked to light Laundry ventilation: Individual fan, ducted to roof or façade – interlocked to light Kitchen range hood: Individual fan, ducted to roof or façade – manual on/manual off
Artificial lighting (within common areas)	**Car park area:** Fluorescent – zone switching & motion sensor **Lifts:** LED – connected to lift call button **Switch room:** Fluorescent - motion sensors **Garbage rooms:** Fluorescent – motion sensor **Residents community room:** Compact fluorescent - manual on / manual off **Building managers office:** Compact fluorescent - manual on / manual off **Plant & service rooms:** Fluorescent – motion sensor **Bike storage:** Fluorescent – motion sensor **Ground floor lobby:** Compact fluorescent / LED – motion sensor **Hallways:** Compact fluorescent / LED – zoned switching with motion sensor **Amenities & toilets:** Compact fluorescent / manual on / timer off

Ventilation systems (within common areas)	**Car park area:** Ventilation (supply + exhaust) - carbon monoxide monitor + VSD fan **Switch room:** Ventilation supply only - interlocked to light **Garbage rooms:** Ventilation exhaust only – No efficiency measure required **Residents community room:** Air conditioned system - time clock or BMS controlled **Building managers office:** Air conditioned system - time clock or BMS controlled **Plant & service rooms:** Ventilation supply only - interlocked to light **Bike storage:** Ventilation supply only - interlocked to light **Ground floor lobby:** Air conditioned - time clock or BMS controlled **Hallways:** No mechanical ventilation - natural **Amenities & toilets:** Ventilation exhaust only - time clock or BMS controlled


single glazing
double glazing

Thermal Comfort Results

Proposed Residential Development

Sydney Olympic Park Site 68

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14732047				Issued: 25/05/15			Accreditation #	VIC/BDAV/12/1473
Thermal performance specifications								Page 1 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
Level 1									
101	2	82	0	27	23	6.0	0	No	None
102	2	80	0	26	15	6.5	0	No	None
103	1	52	0	30	23	5.5	0	No	None
104	1	52	0	45	21	5.0	0	No	None
105	2	75	0	44	32	4.0	0	No	None
106	2	80	0	26	31	5.5	0	No	None
107	1	52	0	25	29	5.5	0	No	None
108	1	52	0	40	26	5.0	0	No	None
109	2	86	0	28	17	6.5	0	No	None
110	2	85	0	13	15	7.5	0	No	None
111	1	62	0	20	20	6.5	0	No	None
112	1	58	0	25	25	6.0	0	No	None
Level 2									
201	2	82	0	26	23	6.0	0	No	None
202	2	80	0	25	16	6.5	0	No	None
203	1	52	0	30	23	5.5	0	No	None
204	1	52	0	40	22	5.0	0	No	None
205	2	75	0	32	37	4.5	0	No	None
206	2	80	0	24	33	5.5	0	No	None
207	1	52	0	25	29	5.5	0	No	None
208	1	52	0	35	27	5.0	0	No	None
209	2	86	0	27	24	6.0	0	No	None
210	2	85	0	12	16	7.5	0	No	None
211	1	62	0	16	24	6.5	0	No	None
212	1	58	0	22	26	6.0	0	No	None
Level 3									
301	2	82	0	28	14	6.5	0	No	None
302	2	80	0	30	10	6.5	0	No	None
303	1	52	0	34	14	6.0	0	No	None
304	1	52	0	45	13	5.5	0	No	None
305	2	75	0	36	20	5.5	0	No	None
306	2	80	0	28	19	6.0	0	No	None

Thermal Comfort Results

Proposed Residential Development

Sydney Olympic Park Site 68

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14732047				Issued: 25/05/15			Accreditation #	VIC/BDAV/12/1473
Thermal performance specifications								Page 2 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
307	1	52	0	28	15	6.5	0	No	None
308	1	52	0	41	15	5.5	0	No	None
309	2	86	0	31	15	6.0	0	No	None
310	2	85	0	15	11	8.0	0	No	None
311	1	62	0	19	15	7.0	0	No	None
312	2	58	0	26	16	6.5	0	No	None
Level 4									
401	1	52	0	38	13	5.5	0	No	None
402	1	52	0	31	13	6.5	0	No	None
403	2	80	0	32	14	6.0	0	No	None
404	2	72	0	45	17	5.0	0	No	None
405	1	52	0	36	16	5.5	0	No	None
406	1	52	0	32	17	6.0	0	No	None
407	2	80	0	29	14	6.5	0	No	None
408	2	82	0	28	14	6.5	0	No	None
409	1	58	0	25	15	6.5	0	No	None
410	1	62	0	20	12	7.0	0	No	None
411	2	85	0	17	10	7.5	0	No	None
412	2	86	0	33	14	6.0	0	No	None
Level 5									
501	1	52	0	44	13	5.5	0	No	None
502	1	52	0	32	13	6.5	0	No	None
503	2	80	0	33	12	6.5	0	No	None
504	2	72	0	45	17	5.0	0	No	None
505	1	52	0	41	16	5.5	0	No	None
506	1	52	0	32	17	6.0	0	No	None
507	2	80	0	28	14	6.5	0	No	None
508	2	82	0	28	14	6.5	0	No	None
509	1	58	0	25	15	6.5	0	No	None
510	1	62	0	20	12	7.0	0	No	None
511	2	85	0	17	11	7.5	0	No	None
512	2	86	0	33	14	6.0	0	No	None

Thermal Comfort Results

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Sydney Olympic Park Site 68

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Certificate # 14732047				Issued: 25/05/15			Accreditation #	VIC/BDAV/12/1473
Thermal performance specifications								Page 3 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
Level 6									
601	1	52	0	44	13	5.5	0	No	None
602	1	52	0	32	13	6.5	0	No	None
603	2	80	0	33	12	6.5	0	No	None
604	2	72	0	45	17	5.0	0	No	None
605	1	52	0	41	16	5.5	0	No	None
606	1	52	0	32	17	6.0	0	No	None
607	2	80	0	28	14	6.5	0	No	None
608	2	82	0	28	14	6.5	0	No	None
609	1	58	0	25	15	6.5	0	No	None
610	1	62	0	20	12	7.0	0	No	None
611	2	85	0	17	11	7.5	0	No	None
612	2	86	0	33	14	6.0	0	No	None
Level 7									
701	1	52	0	44	13	5.5	0	No	None
702	1	52	0	32	13	6.5	0	No	None
703	2	80	0	33	12	6.5	0	No	None
704	2	72	0	45	17	5.0	0	No	None
705	1	52	0	41	16	5.5	0	No	None
706	1	52	0	32	17	6.0	0	No	None
707	2	80	0	28	14	6.5	0	No	None
708	2	82	0	28	14	6.5	0	No	None
709	1	58	0	25	15	6.5	0	No	None
710	1	62	0	20	12	7.0	0	No	None
711	2	85	0	17	11	7.5	0	No	None
712	2	86	0	33	14	6.0	0	No	None
Level 8									
801	1	52	0	45	12	5.5	0	No	None
802	1	52	0	32	13	6.5	0	No	None
803	2	80	0	33	12	6.5	0	No	None
804	2	72	0	45	17	5.0	0	No	None
805	1	52	0	41	16	5.5	0	No	None
806	1	52	0	32	17	6.0	0	No	None

Thermal Comfort Results

Proposed Residential Development

Sydney Olympic Park Site 68

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14732047				Issued: 25/05/15			Accreditation #		VIC/BDAV/12/1473
Thermal performance specifications									Page 4 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
807	2	80	0	28	14	6.5	0	No	None
808	2	82	0	28	14	6.5	0	No	None
809	2	58	0	25	15	6.5	0	No	None
810	1	62	0	20	12	7.0	0	No	None
811	2	85	0	17	11	7.5	0	No	None
812	2	86	0	33	14	6.0	0	No	None
Level 9									
901	1	52	0	45	12	5.5	0	No	None
902	1	52	0	32	13	6.5	0	No	None
903	2	80	0	35	12	6.0	0	No	None
904	2	72	0	45	17	5.0	0	No	None
905	1	52	0	42	15	5.5	0	No	None
906	1	52	0	32	17	6.0	0	No	None
907	2	80	0	29	14	6.5	0	No	None
908	2	82	0	28	14	6.5	0	No	None
909	1	58	0	26	15	6.5	0	No	None
910	1	62	0	20	12	7.0	0	No	None
911	2	85	0	18	11	7.5	0	No	None
912	2	86	0	33	14	6.0	0	No	None
Level 10									
1001	2	82	0	31	12	6.5	0	No	None
1002	2	80	0	32	9	6.5	0	No	None
1003	1	52	0	37	12	6.0	0	No	None
1004	1	52	0	42	11	5.5	0	No	None
1005	2	75	0	40	16	5.5	0	No	None
1006	2	80	0	31	15	6.0	0	No	None
1007	1	52	0	31	14	6.0	0	No	None
1008	1	52	0	38	15	5.5	0	No	None
1009	2	86	0	34	14	6.0	0	No	None
1010	2	85	0	17	9	8.0	0	No	None
1011	1	62	0	21	13	7.0	0	No	None
1012	2	58	0	23	13	7.0	0	No	None

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Thermal performance specifications									Page 5 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
Level 11									
1101	2	82	0	31	12	6.5	0	No	None
1102	2	80	0	31	9	6.5	0	No	None
1103	1	52	0	37	12	6.0	0	No	None
1104	1	52	0	48	11	5.0	0	No	None
1105	2	75	0	40	16	5.5	0	No	None
1106	2	80	0	30	14	6.5	0	No	None
1107	1	52	0	32	17	6.0	0	No	None
1108	1	52	0	43	13	5.5	0	No	None
1109	2	86	0	34	14	6.0	0	No	None
1110	2	85	0	17	9	8.0	0	No	None
1111	1	62	0	21	13	7.0	0	No	None
1112	1	58	0	28	14	6.5	0	No	None
Level 12									
1201	2	82	0	31	12	6.5	0	No	None
1202	2	80	0	31	9	6.5	0	No	None
1203	1	52	0	37	12	6.0	0	No	None
1204	1	52	0	48	11	5.0	0	No	None
1205	2	75	0	40	16	5.5	0	No	None
1206	2	80	0	30	14	6.5	0	No	None
1207	1	52	0	32	17	6.0	0	No	None
1208	1	52	0	43	13	5.5	0	No	None
1209	2	86	0	34	14	6.0	0	No	None
1210	2	85	0	17	9	8.0	0	No	None
1211	1	62	0	21	13	7.0	0	No	None
1212	1	58	0	28	14	6.5	0	No	None
Level 13									
1301	2	82	0	31	12	6.5	0	No	None
1302	2	80	0	31	9	6.5	0	No	None
1303	1	52	0	37	12	6.0	0	No	None
1304	1	52	0	48	11	5.0	0	No	None
1305	1	75	0	40	16	5.5	0	No	None
1306	2	80	0	30	14	6.5	0	No	None

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Thermal performance specifications									Page 6 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
1307	1	52	0	32	17	6.0	0	No	None
1308	1	52	0	43	13	5.5	0	No	None
1309	2	86	0	34	14	6.0	0	No	None
1310	2	85	0	17	9	8.0	0	No	None
1311	1	62	0	21	13	7.0	0	No	None
1312	1	58	0	28	14	6.5	0	No	None
Level 14									
1401	2	82	0	31	12	6.5	0	No	None
1402	2	80	0	31	9	6.5	0	No	None
1403	1	52	0	37	12	6.0	0	No	None
1404	1	52	0	48	11	5.0	0	No	None
1405	2	75	0	40	16	5.5	0	No	None
1406	2	80	0	30	14	6.5	0	No	None
1407	1	52	0	32	17	6.0	0	No	None
1408	1	52	0	43	13	5.5	0	No	None
1409	2	86	0	34	14	6.0	0	No	None
1410	2	85	0	17	9	8.0	0	No	None
1411	1	62	0	21	13	7.0	0	No	None
1412	1	58	0	28	14	6.5	0	No	None
Level 15									
1501	2	82	0	31	12	6.5	0	No	None
1502	2	80	0	32	10	6.5	0	No	None
1503	1	52	0	37	12	6.0	0	No	None
1504	1	52	0	48	11	5.0	0	No	None
1505	2	75	0	40	16	5.5	0	No	None
1506	2	80	0	32	15	6.0	0	No	None
1507	1	52	0	32	17	6.0	0	No	None
1508	1	52	0	44	13	5.5	0	No	None
1509	2	86	0	34	14	6.0	0	No	None
1510	2	85	0	17	9	8.0	0	No	None
1511	1	62	0	21	13	7.0	0	No	None
1512	1	58	0	29	13	6.5	0	No	None

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Thermal performance specifications									Page 7 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
Level 16									
1601	1	52	0	42	11	5.5	0	No	None
1602	1	52	0	35	12	6.0	0	No	None
1603	2	80	0	36	10	6.0	0	No	None
1604	2	72	0	49	12	5.0	0	No	None
1605	1	52	0	40	14	5.5	0	No	None
1606	1	52	0	35	15	6.0	0	No	None
1607	2	80	0	31	12	6.5	0	No	None
1608	2	82	0	28	11	6.5	0	No	None
1609	1	58	0	23	13	7.0	0	No	None
1610	1	62	0	22	10	7.0	0	No	None
1611	1	62	0	21	12	7.0	0	No	None
1612	3	100	0	33	13	6.0	0	No	None
Level 17									
1701	1	52	0	47	11	5.0	0	No	None
1702	1	52	0	35	12	6.0	0	No	None
1703	2	80	0	35	10	6.0	0	No	None
1704	2	72	0	49	12	5.0	0	No	None
1705	1	52	0	45	14	5.0	0	No	None
1706	1	52	0	35	15	6.0	0	No	None
1707	2	80	0	30	12	6.5	0	No	None
1708	2	82	0	28	11	6.5	0	No	None
1709	1	58	0	28	13	6.5	0	No	None
1710	1	62	0	22	10	7.0	0	No	None
1711	1	62	0	21	12	7.0	0	No	None
1712	3	100	0	34	13	6.0	0	No	None
Level 18									
1801	1	52	0	47	11	5.0	0	No	None
1802	1	52	0	35	12	6.0	0	No	None
1803	2	80	0	35	10	6.0	0	No	None
1804	2	72	0	49	12	5.0	0	No	None
1805	1	52	0	45	14	5.0	0	No	None
1806	1	52	0	35	15	6.0	0	No	None

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Thermal performance specifications									Page 8 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
1807	2	80	0	30	12	6.5	0	No	None
1808	2	82	0	28	11	6.5	0	No	None
1809	1	58	0	28	13	6.5	0	No	None
1810	1	62	0	22	10	7.0	0	No	None
1811	1	62	0	21	12	7.0	0	No	None
1812	3	100	0	34	13	6.0	0	No	None
Level 19									
1901	1	52	0	47	11	5.0	0	No	None
1902	1	52	0	35	12	6.0	0	No	None
1903	2	80	0	35	10	6.0	0	No	None
1904	2	72	0	49	12	5.0	0	No	None
1905	1	52	0	45	14	5.0	0	No	None
1906	1	52	0	35	15	6.0	0	No	None
1907	2	80	0	30	12	6.5	0	No	None
1908	2	82	0	28	11	6.5	0	No	None
1909	1	58	0	28	13	6.5	0	No	None
1910	1	62	0	22	10	7.0	0	No	None
1911	1	62	0	21	12	7.0	0	No	None
1912	3	100	0	34	13	6.0	0	No	None
Level 20									
2001	1	52	0	47	11	5.0	0	No	None
2002	1	52	0	35	12	6.0	0	No	None
2003	2	80	0	35	10	6.0	0	No	None
2004	2	72	0	49	12	5.0	0	No	None
2005	1	52	0	45	14	5.0	0	No	None
2006	1	52	0	35	15	6.0	0	No	None
2007	2	80	0	30	12	6.5	0	No	None
2008	2	82	0	28	11	6.5	0	No	None
2009	1	58	0	28	13	6.5	0	No	None
2010	1	62	0	22	10	7.0	0	No	None
2011	1	62	0	21	12	7.0	0	No	None
2012	3	100	0	34	13	6.0	0	No	None

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Thermal performance specifications								Page 9 of 13
Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
Level 21									
2101	1	52	0	47	11	5.0	0	No	None
2102	1	52	0	35	12	6.0	0	No	None
2103	2	80	0	35	10	6.0	0	No	None
2104	2	72	0	49	12	5.0	0	No	None
2105	1	52	0	45	14	5.0	0	No	None
2106	1	52	0	35	15	6.0	0	No	None
2107	2	80	0	30	12	6.5	0	No	None
2108	2	82	0	28	11	6.5	0	No	None
2109	1	58	0	28	13	6.5	0	No	None
2110	1	62	0	22	10	7.0	0	No	None
2111	1	62	0	21	12	7.0	0	No	None
2112	3	100	0	34	13	6.0	0	No	None
Level 22									
2201	1	52	0	47	11	5.0	0	No	None
2202	1	52	0	35	12	6.0	0	No	None
2203	2	80	0	35	10	6.0	0	No	None
2204	2	72	0	49	12	5.0	0	No	None
2205	1	52	0	45	14	5.0	0	No	None
2206	1	52	0	35	15	6.0	0	No	None
2207	2	80	0	30	12	6.5	0	No	None
2208	2	82	0	28	11	6.5	0	No	None
2209	1	58	0	28	13	6.5	0	No	None
2210	1	62	0	22	10	7.0	0	No	None
2211	1	62	0	21	12	7.0	0	No	None
2212	3	100	0	34	13	6.0	0	No	None
Level 23									
2301	1	52	0	48	10	5.5	0	No	None
2302	1	52	0	35	12	6.0	0	No	None
2303	2	80	0	35	10	6.0	0	No	None
2304	2	72	0	49	12	5.0	0	No	None
2305	1	52	0	46	14	5.0	0	No	None
2306	1	52	0	35	15	6.0	0	No	None

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Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
2307	2	80	0	30	12	6.5	0	No	None
2308	2	82	0	28	11	6.5	0	No	None
2309	1	58	0	28	13	6.5	0	No	None
2310	1	62	0	22	10	7.0	0	No	None
2311	1	62	0	21	12	7.0	0	No	None
2312	3	100	0	34	13	6.0	0	No	None
Level 24									
2401	1	52	0	48	10	5.5	0	No	None
2402	1	52	0	35	12	6.0	0	No	None
2403	2	80	0	35	10	6.0	0	No	None
2404	2	72	0	49	12	5.0	0	No	None
2405	1	52	0	46	14	5.0	0	No	None
2406	1	52	0	35	15	6.0	0	No	None
2407	2	80	0	30	12	6.5	0	No	None
2408	2	82	0	28	11	6.5	0	No	None
2409	1	58	0	28	13	6.5	0	No	None
2410	1	62	0	22	10	7.0	0	No	None
2411	1	62	0	21	12	7.0	0	No	None
2412	3	100	0	34	13	6.0	0	No	None
Level 25									
2501	1	52	0	48	10	5.5	0	No	None
2502	1	52	0	35	12	6.0	0	No	None
2503	2	80	0	37	10	6.0	0	No	None
2504	2	72	0	49	12	5.0	0	No	None
2505	1	52	0	46	14	5.0	0	No	None
2506	1	52	0	35	15	6.0	0	No	None
2507	2	80	0	32	12	6.5	0	No	None
2508	2	82	0	28	11	6.5	0	No	None
2509	1	58	0	29	13	6.5	0	No	None
2510	1	62	0	26	11	7.0	0	No	None
2511	1	62	0	21	12	7.0	0	No	None
2512	3	100	0	34	12	6.0	0	No	None

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Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
Level 26									
2601	4	157	0	28	13	6.5	0	No	None
2602	3	107	0	46	9	5.5	0	No	None
2603	2	75	0	41	16	5.5	0	No	None
2604	2	80	0	32	14	6.0	0	No	None
2605	1	52	0	33	14	6.0	0	No	None
2606	1	52	0	39	14	5.5	0	No	None
2607	2	86	0	35	14	6.0	0	No	None
2608	2	85	0	18	9	7.5	0	No	None
2609	3	118	0	23	10	7.0	0	No	None
Level 27									
2701	4	157	0	28	13	6.5	0	No	None
2702	3	107	0	46	9	5.5	0	No	None
2703	2	75	0	41	16	5.5	0	No	None
2704	2	80	0	31	14	6.0	0	No	None
2705	1	52	0	33	14	6.0	0	No	None
2706	1	52	0	39	14	5.5	0	No	None
2707	2	86	0	35	14	6.0	0	No	None
2708	2	85	0	18	9	7.5	0	No	None
2709	3	118	0	23	10	7.0	0	No	None
Level 28									
2801	4	157	0	28	13	6.5	0	No	None
2802	3	107	0	48	9	5.5	0	No	None
2803	2	75	0	41	16	5.5	0	No	None
2804	2	80	0	31	14	6.0	0	No	None
2805	1	52	0	33	14	6.0	0	No	None
2806	1	52	0	45	13	5.0	0	No	None
2807	2	86	0	35	14	6.0	0	No	None
2808	2	85	0	18	9	7.5	0	No	None
2809	3	118	0	25	10	7.0	0	No	None
Level 29									
2901	4	157	0	28	13	6.5	0	No	None
2902	3	107	0	48	9	5.5	0	No	None
2903	2	75	0	41	16	5.5	0	No	None

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Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads ($MJ/M^2/y$)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
2904	2	80	0	31	14	6.0	0	No	None
2905	1	52	0	33	14	6.0	0	No	None
2906	1	52	0	45	13	5.0	0	No	None
2907	2	86	0	35	14	6.0	0	No	None
2908	2	85	0	18	9	7.5	0	No	None
2909	3	118	0	25	10	7.0	0	No	None
Level 30									
3001	4	157	0	28	13	6.5	0	No	None
3002	3	107	0	48	9	5.5	0	No	None
3003	2	75	0	41	16	5.5	0	No	None
3004	2	80	0	31	14	6.0	0	No	None
3005	1	52	0	33	14	6.0	0	No	None
3006	1	52	0	45	13	5.0	0	No	None
3007	2	86	0	35	14	6.0	0	No	None
3008	2	85	0	18	9	7.5	0	No	None
3009	3	118	0	25	10	7.0	0	No	None
Level 31									
3101	4	157	0	28	13	6.5	0	No	None
3102	3	107	0	48	9	5.5	0	No	None
3103	2	75	0	41	16	5.5	0	No	None
3104	2	80	0	31	14	6.0	0	No	None
3105	1	52	0	33	14	6.0	0	No	None
3106	1	52	0	45	13	5.0	0	No	None
3107	2	86	0	35	14	6.0	0	No	None
3108	2	85	0	18	9	7.5	0	No	None
3109	3	118	0	25	10	7.0	0	No	None
Level 32									
3201	4	157	0	28	13	6.5	0	No	None
3202	3	107	0	48	9	5.5	0	No	None
3203	2	75	0	41	16	5.5	0	No	None
3204	2	80	0	31	14	6.0	0	No	None
3205	1	52	0	33	14	6.0	0	No	None
3206	1	52	0	45	13	5.0	0	No	None
3207	2	86	0	35	14	6.0	0	No	None

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Thermal performance specifications								Page 13 of 13
Unit number	**Number of Bedrooms**	**Floor area** (M^2)		**Predict. loads** ($MJ/M^2/y$)		**Star Rating**	**Window in Bathroom**	**Window in Kitchen**	**Thermal Comfort Upgrades**
3208	2	85	0	18	9	7.5	0	No	None
3209	3	118	0	25	10	7.0	0	No	None
Level 33									
3301	4	157	0	28	13	6.5	0	No	None
3302	3	107	0	48	9	5.5	0	No	None
3303	2	75	0	41	16	5.5	0	No	None
3304	2	80	0	31	14	6.0	0	No	None
3305	1	52	0	33	14	6.0	0	No	None
3306	1	52	0	45	13	5.0	0	No	None
3307	2	86	0	35	14	6.0	0	No	None
3308	2	85	0	18	9	7.5	0	No	None
3309	3	118	0	25	10	7.0	0	No	None
Level 34									
3401	4	157	0	28	13	6.5	0	No	None
3402	3	107	0	48	9	5.5	0	No	None
3403	2	75	0	41	16	5.5	0	No	None
3404	2	80	0	31	14	6.0	0	No	None
3405	1	52	0	33	14	6.0	0	No	None
3406	1	52	0	45	13	5.0	0	No	None
3407	2	86	0	35	14	6.0	0	No	None
3408	2	85	0	18	9	7.5	0	No	None
3409	3	118	0	25	10	7.0	0	No	None
Level 35									
3501	4	157	0	34	13	6.0	0	No	None
3502	4	163	0	66	17	4.0	0	No	None
3503	4	140	0	66	16	4.0	0	No	None
3504	2	75	0	50	16	5.0	0	No	None
3505	1	52	0	45	14	5.0	0	No	None
3506	1	52	0	52	13	5.0	0	No	None
3507	2	86	0	46	13	5.0	0	No	None
3508	2	85	0	27	9	7.0	0	No	None
3509	2	85	0	21	9	7.5	0	No	None
3510	4	163	0	42	17	5.0	0	No	None
3511	4	175	5	38	22	5.0	0	No	None

NatHERS Certificate
New Dwelling

6.0 Stars

Simulation Software

Software Name	BERS Pro 4.2
Software Version	Release 110811/A
Engine Version	CHENATH V2.13

Simulation Details

Project Name	AA3-20 unit 1603 Level 16 - type 2A _1
Date	18/09/2014
Location	HOMEBUSH BAY PC 2127
Climate file	climat56.TXT
Adjusted Star Rating	6.0 Stars
Conditioned Area	79.51 m²
Unconditioned Area	0.00 m²
Adjusted Cooling	9.7 MJ/m²
Adjusted Heating	36.2 MJ/m²
Adjusted Total	45.9 MJ/m²

Energy Rating Certificate Number 14732047

☐ single-dwelling rating — 5.5 stars

☒ multi-unit development (attach listing of ratings) — heating 33 MJ/m²; cooling 13 MJ/m²

If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number Tracey Cools VIC/BDAV/12/1473

Assessor Signature _____ Date 25/05/15

Dwelling Address

DP Number	1134933
Unit Number	
Lot Number	75
House Number	
Street Name	98 Bennelong Road
Development Name	Site 68
Suburb	Sydney Olympic Park NSW 2127

Client Details

Name	Arup
Phone	02 9320 9320 Fax 02 9320 9321
Email	info@arup.com
Postal Address	PO Box 76, Millers Point, Sydney, NSW 2000
Street Details	Level 10, 201 Kent Street, Sydney, NSW 2000

Assessor Details

Name	Tracey Cools
Phone	02 9970 6181 Fax 02 9970 6181
Email	admin@efficientliving.com.au
Postal Address	
Street Details	13/13 Lagoon Street, Narrabeen NSW 2101

Signed by the Assessor.....Date.....25/05/15.....

Tilted roof windows with blinds cannot be modelled using this version of BERSPro.
All windows are modelled with Holland Blinds for regulatory purposes.

Building Element Details

Project AA3-20 unit 1603 Level 16 - type 2A Run 1
HOMEBUSH BAY PC 2127 Lat -33.90 Long 151.10 Climate File climat56.TXT

Summary

Conditioned Area	79.5 m²
Unconditioned Area	0.0 m²
Total Floor Area	79.5 m²
Total Glazed Area	31.2 m²
Total External Solid door Area	2.2 m²
Glass to Floor Area	39.2 %
Gross External Wall Area	120.2 m²
Net External Wall Area	86.9 m²

Window
31.1 m² LID-05-025a Lidco Uval 4.11 SHGC 0.58
Glass 5mm Clear/68mm Air Gap/5mm Clear
Frame Lidco: 366 System - Aluminium Acoustic Sliding Door S.F - Double Glazed

External Wall
58.0 m² PowerPanel to neighbour Bulk Insulation R 1.5
15.7 m² PowerPanel Bulk Insulation R 1.5
13.1 m² Fibro Cavity Panel 70mm gap Bulk Insulation R 1.5

Internal Wall
73.4 m² Cavity Panel 70mm gap No Insulation

External Floor
16.2 m² Concrete Slab, Unit Below Carpet 10mm No Insulation
38.0 m² Concrete Slab, Unit Below 80/20 Carpet 10mm/Ceramic No Insulation
11.4 m² Concrete Slab, Unit Below Ceramic Tiles 8mm No Insulation
13.8 m² Suspended Concrete Slab Carpet 10mm Bulk Insulation in Contact with Floor R 2.0

External Ceiling
79.5 m² Plasterboard No Insulation Apartment above

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

Energy Rating Certificate Number 14732047

☐ single-dwelling rating 5.5 stars

☒ multi-unit development (attach listing of ratings) heating 33 MJ/m²
If selected, data specified is the average across the entire development cooling 13 MJ/m²

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number Tracey Cools VIC/BDAV/12/1473

Assessor Signature _____ Date 25/05/15

BASIX® Certificate

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

Multi Dwelling

Certificate number: 570381M_05

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 18/09/2014 published by Planning & Infrastructure. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 570381M_04 lodged with the consent authority or certifier on 07 November 2014 with application 6603.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Director-General
Date of issue: Monday, 25 May 2015
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT Planning & Infrastructure

Project summary	
Project name	Site 68_05
Street address	98 Bennelong Road Sydney Olympic Park 2127
Local Government Area	Auburn Council
Plan type and plan number	deposited 1134933
Lot no.	75
Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	392
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 47	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 20	Target 20

Water score comprises:

- Sydney Olympic Park Authority reticulated alternative water: 11.4
- Other water efficiency commitments: 35.6

Certificate Prepared by
Name / Company Name: Efficient Living
ABN (if applicable): 82116346082

Description of project

Project address	
Project name	Site 68_05
Street address	98 Bennelong Road Sydney Olympic Park 2127
Local Government Area	Auburn Council
Plan type and plan number	deposited 1134933
Lot no.	75
Section no.	-

Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	392
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details	
Site area (m²)	13998
Roof area (m²)	1217
Non-residential floor area (m²)	236
Residential car spaces	460
Non-residential car spaces	22

Common area landscape	
Common area lawn (m²)	563
Common area garden (m²)	5431
Area of indigenous or low water use species (m²)	0

Assessor details	
Assessor number	BDAV/12/1473
Certificate number	14732047
Climate zone	56

Project score		
Water	✔ 47	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 20	Target 20

Water score comprises:

- Sydney Olympic Park Authority reticulated alternative water: 11.4
- Other water efficiency commitments: 35.6

Description of project

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

Residential flat buildings - Site 68, 392 dwellings, 33 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
101	2	82.0	0.0	0	0
105	2	75.0	0.0	0	0
109	2	86.0	0.0	0	0
201	2	82.0	0.0	0	0
205	2	75.0	0.0	0	0
209	2	86.0	0.0	0	0
301	2	82.0	0.0	0	0
305	2	75.0	0.0	0	0
309	2	86.0	0.0	0	0
401	1	52.0	0.0	0	0
405	1	52.0	0.0	0	0
409	1	58.0	0.0	0	0
501	1	52.0	0.0	0	0
505	1	52.0	0.0	0	0
509	1	58.0	0.0	0	0
601	1	52.0	0.0	0	0
605	1	52.0	0.0	0	0
609	1	58.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
102	2	80.0	0.0	0	0
106	2	80.0	0.0	0	0
110	2	85.0	0.0	0	0
202	2	80.0	0.0	0	0
206	2	80.0	0.0	0	0
210	2	85.0	0.0	0	0
302	2	80.0	0.0	0	0
306	2	80.0	0.0	0	0
310	2	85.0	0.0	0	0
402	1	52.0	0.0	0	0
406	1	52.0	0.0	0	0
410	1	62.0	0.0	0	0
502	1	52.0	0.0	0	0
506	1	52.0	0.0	0	0
510	1	62.0	0.0	0	0
602	1	52.0	0.0	0	0
606	1	52.0	0.0	0	0
610	1	62.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
103	1	52.0	0.0	0	0
107	1	52.0	0.0	0	0
111	1	62.0	0.0	0	0
203	1	52.0	0.0	0	0
207	1	52.0	0.0	0	0
211	1	62.0	0.0	0	0
303	1	52.0	0.0	0	0
307	1	52.0	0.0	0	0
311	1	62.0	0.0	0	0
403	2	80.0	0.0	0	0
407	2	80.0	0.0	0	0
411	2	85.0	0.0	0	0
503	2	80.0	0.0	0	0
507	2	80.0	0.0	0	0
511	2	85.0	0.0	0	0
603	2	80.0	0.0	0	0
607	2	80.0	0.0	0	0
611	2	85.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
104	1	52.0	0.0	0	0
108	1	52.0	0.0	0	0
112	1	58.0	0.0	0	0
204	1	52.0	0.0	0	0
208	1	52.0	0.0	0	0
212	1	58.0	0.0	0	0
304	1	52.0	0.0	0	0
308	1	52.0	0.0	0	0
312	2	58.0	0.0	0	0
404	2	72.0	0.0	0	0
408	2	82.0	0.0	0	0
412	2	86.0	0.0	0	0
504	2	72.0	0.0	0	0
508	2	82.0	0.0	0	0
512	2	86.0	0.0	0	0
604	2	72.0	0.0	0	0
608	2	82.0	0.0	0	0
612	2	86.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
701	1	52.0	0.0	0	0
705	1	52.0	0.0	0	0
709	1	58.0	0.0	0	0
801	1	52.0	0.0	0	0
805	1	52.0	0.0	0	0
809	2	58.0	0.0	0	0
901	1	52.0	0.0	0	0
905	1	52.0	0.0	0	0
909	1	58.0	0.0	0	0
1001	2	82.0	0.0	0	0
1005	2	75.0	0.0	0	0
1009	2	86.0	0.0	0	0
1101	2	82.0	0.0	0	0
1105	2	75.0	0.0	0	0
1109	2	86.0	0.0	0	0
1201	2	82.0	0.0	0	0
1205	2	75.0	0.0	0	0
1209	2	86.0	0.0	0	0
1301	2	82.0	0.0	0	0
1305	2	75.0	0.0	0	0
1309	2	86.0	0.0	0	0
1401	2	82.0	0.0	0	0
1405	2	75.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
702	1	52.0	0.0	0	0
706	1	52.0	0.0	0	0
710	1	62.0	0.0	0	0
802	1	52.0	0.0	0	0
806	1	52.0	0.0	0	0
810	1	62.0	0.0	0	0
902	1	52.0	0.0	0	0
906	1	52.0	0.0	0	0
910	1	62.0	0.0	0	0
1002	2	80.0	0.0	0	0
1006	2	80.0	0.0	0	0
1010	2	85.0	0.0	0	0
1102	2	80.0	0.0	0	0
1106	2	80.0	0.0	0	0
1110	2	85.0	0.0	0	0
1202	2	80.0	0.0	0	0
1206	2	80.0	0.0	0	0
1210	2	85.0	0.0	0	0
1302	2	80.0	0.0	0	0
1306	2	80.0	0.0	0	0
1310	2	85.0	0.0	0	0
1402	2	80.0	0.0	0	0
1406	2	80.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
703	2	80.0	0.0	0	0
707	2	80.0	0.0	0	0
711	2	85.0	0.0	0	0
803	2	80.0	0.0	0	0
807	2	80.0	0.0	0	0
811	2	85.0	0.0	0	0
903	2	80.0	0.0	0	0
907	2	80.0	0.0	0	0
911	2	85.0	0.0	0	0
1003	1	52.0	0.0	0	0
1007	1	52.0	0.0	0	0
1011	1	62.0	0.0	0	0
1103	1	52.0	0.0	0	0
1107	1	52.0	0.0	0	0
1111	1	62.0	0.0	0	0
1203	1	52.0	0.0	0	0
1207	1	52.0	0.0	0	0
1211	1	62.0	0.0	0	0
1303	1	52.0	0.0	0	0
1307	1	52.0	0.0	0	0
1311	1	62.0	0.0	0	0
1403	1	52.0	0.0	0	0
1407	1	52.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
704	2	72.0	0.0	0	0
708	2	82.0	0.0	0	0
712	2	86.0	0.0	0	0
804	2	72.0	0.0	0	0
808	2	82.0	0.0	0	0
812	2	86.0	0.0	0	0
904	2	72.0	0.0	0	0
908	2	82.0	0.0	0	0
912	2	86.0	0.0	0	0
1004	1	52.0	0.0	0	0
1008	1	52.0	0.0	0	0
1012	1	58.0	0.0	0	0
1104	1	52.0	0.0	0	0
1108	1	52.0	0.0	0	0
1112	1	58.0	0.0	0	0
1204	1	52.0	0.0	0	0
1208	1	52.0	0.0	0	0
1212	1	58.0	0.0	0	0
1304	1	52.0	0.0	0	0
1308	1	52.0	0.0	0	0
1312	1	58.0	0.0	0	0
1404	1	52.0	0.0	0	0
1408	1	52.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
1409	2	86.0	0.0	0	0
1501	2	82.0	0.0	0	0
1505	2	75.0	0.0	0	0
1509	2	86.0	0.0	0	0
1601	1	52.0	0.0	0	0
1605	1	52.0	0.0	0	0
1609	1	58.0	0.0	0	0
1701	1	52.0	0.0	0	0
1705	1	52.0	0.0	0	0
1709	1	58.0	0.0	0	0
1801	1	52.0	0.0	0	0
1805	1	52.0	0.0	0	0
1809	1	58.0	0.0	0	0
1901	1	52.0	0.0	0	0
1905	1	52.0	0.0	0	0
1909	1	58.0	0.0	0	0
2001	1	52.0	0.0	0	0
2005	1	52.0	0.0	0	0
2009	1	58.0	0.0	0	0
2101	1	52.0	0.0	0	0
2105	1	52.0	0.0	0	0
2109	1	58.0	0.0	0	0
2201	1	52.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
1410	2	85.0	0.0	0	0
1502	2	80.0	0.0	0	0
1506	2	80.0	0.0	0	0
1510	2	85.0	0.0	0	0
1602	1	52.0	0.0	0	0
1606	1	52.0	0.0	0	0
1610	1	62.0	0.0	0	0
1702	1	52.0	0.0	0	0
1706	1	52.0	0.0	0	0
1710	1	62.0	0.0	0	0
1802	1	52.0	0.0	0	0
1806	1	52.0	0.0	0	0
1810	1	62.0	0.0	0	0
1902	1	52.0	0.0	0	0
1906	1	52.0	0.0	0	0
1910	1	62.0	0.0	0	0
2002	1	52.0	0.0	0	0
2006	1	52.0	0.0	0	0
2010	1	62.0	0.0	0	0
2102	1	52.0	0.0	0	0
2106	1	52.0	0.0	0	0
2110	1	62.0	0.0	0	0
2202	1	52.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
1411	1	62.0	0.0	0	0
1503	1	52.0	0.0	0	0
1507	1	52.0	0.0	0	0
1511	1	62.0	0.0	0	0
1603	2	80.0	0.0	0	0
1607	2	80.0	0.0	0	0
1611	1	62.0	0.0	0	0
1703	2	80.0	0.0	0	0
1707	2	80.0	0.0	0	0
1711	1	62.0	0.0	0	0
1803	2	80.0	0.0	0	0
1807	2	80.0	0.0	0	0
1811	1	62.0	0.0	0	0
1903	2	80.0	0.0	0	0
1907	2	80.0	0.0	0	0
1911	1	62.0	0.0	0	0
2003	2	80.0	0.0	0	0
2007	2	80.0	0.0	0	0
2011	1	62.0	0.0	0	0
2103	2	80.0	0.0	0	0
2107	2	80.0	0.0	0	0
2111	1	62.0	0.0	0	0
2203	2	80.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
1412	1	58.0	0.0	0	0
1504	1	52.0	0.0	0	0
1508	1	52.0	0.0	0	0
1512	1	58.0	0.0	0	0
1604	2	72.0	0.0	0	0
1608	2	82.0	0.0	0	0
1612	3	100.0	0.0	0	0
1704	2	72.0	0.0	0	0
1708	2	82.0	0.0	0	0
1712	3	100.0	0.0	0	0
1804	2	72.0	0.0	0	0
1808	2	82.0	0.0	0	0
1812	3	100.0	0.0	0	0
1904	2	72.0	0.0	0	0
1908	2	82.0	0.0	0	0
1912	3	100.0	0.0	0	0
2004	2	72.0	0.0	0	0
2008	2	82.0	0.0	0	0
2012	3	100.0	0.0	0	0
2104	2	72.0	0.0	0	0
2108	2	82.0	0.0	0	0
2112	3	100.0	0.0	0	0
2204	2	72.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2205	1	52.0	0.0	0	0
2209	1	58.0	0.0	0	0
2301	1	52.0	0.0	0	0
2305	1	52.0	0.0	0	0
2309	1	58.0	0.0	0	0
2401	1	52.0	0.0	0	0
2405	1	52.0	0.0	0	0
2409	1	58.0	0.0	0	0
2501	1	52.0	0.0	0	0
2505	1	52.0	0.0	0	0
2509	1	58.0	0.0	0	0
2601	4 or more bedrooms	157.0	0.0	0	0
2605	1	52.0	0.0	0	0
2609	3	118.0	0.0	0	0
2704	2	80.0	0.0	0	0
2708	2	85.0	0.0	0	0
2803	2	75.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2206	1	52.0	0.0	0	0
2210	1	62.0	0.0	0	0
2302	1	52.0	0.0	0	0
2306	1	52.0	0.0	0	0
2310	1	62.0	0.0	0	0
2402	1	52.0	0.0	0	0
2406	1	52.0	0.0	0	0
2410	1	62.0	0.0	0	0
2502	1	52.0	0.0	0	0
2506	1	52.0	0.0	0	0
2510	1	62.0	0.0	0	0
2602	3	107.0	0.0	0	0
2606	1	52.0	0.0	0	0
2701	4 or more bedrooms	157.0	0.0	0	0
2705	1	52.0	0.0	0	0
2709	3	118.0	0.0	0	0
2804	2	80.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2207	2	80.0	0.0	0	0
2211	1	62.0	0.0	0	0
2303	2	80.0	0.0	0	0
2307	2	80.0	0.0	0	0
2311	1	62.0	0.0	0	0
2403	2	80.0	0.0	0	0
2407	2	80.0	0.0	0	0
2411	1	62.0	0.0	0	0
2503	2	80.0	0.0	0	0
2507	2	80.0	0.0	0	0
2511	1	62.0	0.0	0	0
2603	2	75.0	0.0	0	0
2607	2	86.0	0.0	0	0
2702	3	107.0	0.0	0	0
2706	1	52.0	0.0	0	0
2801	4 or more bedrooms	157.0	0.0	0	0
2805	1	52.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2208	2	82.0	0.0	0	0
2212	3	100.0	0.0	0	0
2304	2	72.0	0.0	0	0
2308	2	82.0	0.0	0	0
2312	3	100.0	0.0	0	0
2404	2	72.0	0.0	0	0
2408	2	82.0	0.0	0	0
2412	3	100.0	0.0	0	0
2504	2	72.0	0.0	0	0
2508	2	82.0	0.0	0	0
2512	3	100.0	0.0	0	0
2604	2	80.0	0.0	0	0
2608	2	85.0	0.0	0	0
2703	2	75.0	0.0	0	0
2707	2	86.0	0.0	0	0
2802	3	107.0	0.0	0	0
2806	1	52.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2807	2	86.0	0.0	0	0
2902	3	107.0	0.0	0	0
2906	1	52.0	0.0	0	0
3001	4 or more bedrooms	157.0	0.0	0	0
3005	1	52.0	0.0	0	0
3009	3	118.0	0.0	0	0
3104	2	80.0	0.0	0	0
3108	2	85.0	0.0	0	0
3203	2	75.0	0.0	0	0
3207	2	86.0	0.0	0	0
3302	3	107.0	0.0	0	0
3306	1	52.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2808	2	85.0	0.0	0	0
2903	2	80.0	0.0	0	0
2907	2	86.0	0.0	0	0
3002	3	107.0	0.0	0	0
3006	1	52.0	0.0	0	0
3101	4 or more bedrooms	157.0	0.0	0	0
3105	1	52.0	0.0	0	0
3109	3	118.0	0.0	0	0
3204	2	80.0	0.0	0	0
3208	2	85.0	0.0	0	0
3303	2	75.0	0.0	0	0
3307	2	86.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2809	3	118.0	0.0	0	0
2904	2	75.0	0.0	0	0
2908	2	85.0	0.0	0	0
3003	2	75.0	0.0	0	0
3007	2	86.0	0.0	0	0
3102	3	107.0	0.0	0	0
3106	1	52.0	0.0	0	0
3201	4 or more bedrooms	157.0	0.0	0	0
3205	1	52.0	0.0	0	0
3209	3	118.0	0.0	0	0
3304	2	80.0	0.0	0	0
3308	2	85.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
2901	4 or more bedrooms	157.0	0.0	0	0
2905	1	52.0	0.0	0	0
2909	3	118.0	0.0	0	0
3004	2	80.0	0.0	0	0
3008	2	85.0	0.0	0	0
3103	2	75.0	0.0	0	0
3107	2	86.0	0.0	0	0
3202	3	107.0	0.0	0	0
3206	1	52.0	0.0	0	0
3301	4 or more bedrooms	157.0	0.0	0	0
3305	1	52.0	0.0	0	0
3309	3	118.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
3401	4 or more bedrooms	157.0	0.0	0	0
3405	1	52.0	0.0	0	0
3409	3	118.0	0.0	0	0
3504	2	75.0	0.0	0	0
3508	2	85.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
3402	3	107.0	0.0	0	0
3406	1	52.0	0.0	0	0
3501	4 or more bedrooms	157.0	0.0	0	0
3505	1	52.0	0.0	0	0
3509	2	85.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
3403	2	75.0	0.0	0	0
3407	2	86.0	0.0	0	0
3502	4 or more bedrooms	163.0	0.0	0	0
3506	1	52.0	0.0	0	0
3510	4 or more bedrooms	163.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
3404	2	80.0	0.0	0	0
3408	2	85.0	0.0	0	0
3503	4 or more bedrooms	140.0	0.0	0	0
3507	2	86.0	0.0	0	0
3511	4 or more bedrooms	175.0	0.0	0	0

Description of project

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

Common areas of unit building - Site 68

Common area	Floor area (m²)
Lift car (No. 1)	-
Lift car (No. 4)	-
Bike storage	30
Amenties & toilets	26

Common area	Floor area (m²)
Lift car (No. 2)	-
Residents community room	44
Ground floor lobby type	375

Common area	Floor area (m²)
Lift car (No. 3)	-
Building managers office	30
Hallway/lobby type	4578

Common areas of the development (non-building specific)

Common area	Floor area (m²)
Car park area	16266
Plant or service room	601

Common area	Floor area (m²)
Switch room	236

Common area	Floor area (m²)
Garbage room	315

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Site 68
    - (a) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Comfort
    - (b) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

2. Commitments for multi-dwelling houses

3. Commitments for single dwelling houses

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

Schedule of BASIX commitments

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

1. Commitments for Residential flat buildings - Site 68

(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
101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 401, 402, 403, 404,	3 star (> 7.5 but <= 9 L/min)	4 star	3 star	3 star	no	-	3.5 star	-	-	-	-	-	-	-

	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
405, 406, 407, 408, 409, 410, 411, 412, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 601, 602, 603, 604, 605, 606, 607, 608, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2701, 2702, 2703,														

	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
2704, 2705, 2706, 2707, 2708, 2709, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3101, 3102, 3103, 3104, 3105, 3106, 3107,														

	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
3108, 3109, 3201, 3202, 3203, 3204, 3205, 3206, 3207, 3208, 3209, 3301, 3302, 3303, 3304, 3305, 3306, 3307, 3308, 3309, 3401, 3402, 3403, 3404, 3405, 3406, 3407, 3408, 3409, 3501, 3502, 3503, 3504, 3505, 3506, 3507, 3508, 3509, 3510, 3511														

	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
609, 610, 611, 612, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912,	3 star (> 7.5 but <= 9 L/min)	4 star	3 star	3 star	no	-	3.5 star	-	-	-	-	-	-	-

	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
1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1301, 1302, 1303, 1304,														

	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
1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608,														

	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
1609, 1610, 1611, 1612, 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912,														

	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
2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2301, 2302, 2303, 2304,														

	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
2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512														

	Alternative water source							
Dwelling no.	**Alternative water supply systems**	**Size**	**Configuration**	**Landscape connection**	**Toilet connection (s)**	**Laundry connection**	**Pool top-up**	**Spa top-up**
All dwellings	reticulated alternative water supply	-	See central systems	-	yes	-	-	-
None	-	-	-	-	-	-	-	-

(ii) Energy	**Show on DA plans**	**Show on CC/CDC plans & specs**	**Certifier check**
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(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:			

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔ ✔ ✔	✔
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	interlocked to light

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
2601, 2701, 2801, 2901, 3001, 3101, 3201, 3301, 3401, 3501, 3502, 3503, 3510, 3511	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	electric floor heating	1-phase airconditioning EER 3.0 - 3.5	4	1	yes	yes	yes	yes	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1612, 1712, 1812, 1912, 2012, 2112, 2212, 2312, 2412, 2512, 2602, 2609, 2702, 2709, 2802, 2809, 2902, 2909, 3002, 3009, 3102, 3109, 3202, 3209, 3302, 3309, 3402, 3409	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	electric floor heating	1-phase airconditioning EER 3.0 - 3.5	3	1	yes	yes	yes	yes	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
103, 104, 107, 108, 111, 112, 203, 204, 207, 208, 211, 212, 303, 304, 307, 308, 311, 401, 402, 405, 406, 409, 410, 501, 502, 505, 506, 509, 510, 601, 602, 605, 606, 609, 610, 701, 702, 705, 706,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1	1	yes	yes	yes	yes	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
709, 710, 801, 802, 805, 806, 810, 901, 902												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
101, 102, 105, 106, 109, 110, 201, 202, 205, 206, 209, 210, 301, 302, 305, 306, 309, 310, 312, 403, 404, 407, 408, 411, 412, 503, 504, 507, 508, 511, 512, 603, 604, 607, 608, 611, 612, 703, 704,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	2	1	yes	yes	yes	yes	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
707, 708, 711, 712, 803, 804, 807, 808, 809, 811, 812, 903, 904												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
907, 908, 911, 912, 1001, 1002, 1005, 1006, 1009, 1010, 1012, 1101, 1102, 1105, 1106, 1109, 1110, 1201, 1202, 1205, 1206, 1209, 1210, 1301, 1302, 1305, 1306, 1309, 1310, 1401, 1402, 1405, 1406, 1409, 1410, 1501, 1502, 1505, 1506,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	2	1	yes	yes	yes	yes	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1509, 1510, 1603, 1604, 1607, 1608, 1703, 1704, 1707, 1708, 1803, 1804, 1807, 1808, 1903, 1904, 1907, 1908, 2003, 2004, 2007, 2008, 2103, 2104, 2107, 2108, 2203, 2204, 2207, 2208, 2303, 2304, 2307, 2308, 2403, 2404, 2407, 2408, 2503,												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
2504, 2507, 2508, 2603, 2604, 2607, 2608, 2703, 2704, 2707, 2708, 2803, 2804, 2807, 2808, 2903, 2904, 2907, 2908, 3003, 3004, 3007, 3008, 3103, 3104, 3107, 3108, 3203, 3204, 3207, 3208, 3303, 3304, 3307, 3308, 3403, 3404, 3407, 3408,												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
3504, 3507, 3508, 3509												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
905, 906, 909, 910, 1003, 1004, 1007, 1008, 1011, 1103, 1104, 1107, 1108, 1111, 1112, 1203, 1204, 1207, 1208, 1211, 1212, 1303, 1304, 1307, 1308, 1311, 1312, 1403, 1404, 1407, 1408, 1411, 1412, 1503, 1504, 1507, 1508, 1511, 1512,	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1-phase airconditioning EER 3.0 - 3.5 (zoned)	1	1	yes	yes	yes	yes	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1601, 1602, 1605, 1606, 1609, 1610, 1611, 1701, 1702, 1705, 1706, 1709, 1710, 1711, 1801, 1802, 1805, 1806, 1809, 1810, 1811, 1901, 1902, 1905, 1906, 1909, 1910, 1911, 2001, 2002, 2005, 2006, 2009, 2010, 2011, 2101, 2102, 2105, 2106,												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
2109, 2110, 2111, 2201, 2202, 2205, 2206, 2209, 2210, 2211, 2301, 2302, 2305, 2306, 2309, 2310, 2311, 2401, 2402, 2405, 2406, 2409, 2410, 2411, 2501, 2502, 2505, 2506, 2509, 2510, 2511, 2605, 2606, 2705, 2706, 2805, 2806, 2905, 2906,												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
3005, 3006, 3105, 3106, 3205, 3206, 3305, 3306, 3405, 3406, 3505, 3506												

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	no	4.5 star	3.5 star	3.5 star	-	-

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

(iii) Thermal Comfort	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.	✔	✔	✔

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
101	27	23
104	45	21
105	44	32
106	26	31
108	40	26
109	28	17
110	13	15
111	20	20
112	25	25
201	26	23
202	25	16

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
204	40	22
205	32	37
206	24	33
208	35	27
209	27	24
210	12	16
211	16	24
212	22	26
302	30	10
305	36	20
306	28	19
307	28	15
308	41	15
310	15	11
311	19	15
312	26	16
401	38	13
402	31	13
405	36	16
411	17	10
905	42	15
911	18	11
1002	32	9
1008	38	15
1502	32	10
1506	32	15
1603	36	10

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
1605	40	14
1612	33	13
2503	37	10
2507	32	12
2510	26	11
3502	66	17
3503	66	16
3504	50	16
3506	52	13
3507	46	13
3508	27	9
3509	21	9
3510	42	17
3511	38	22
102, 909	26	15
103, 203	30	23
107, 207	25	29
407, 907	29	14
801, 901	45	12
309, 1006	31	15
403, 2604	32	14
1004, 1601	42	11
1012, 1609	23	13
1409, 2512	34	12
1512, 2509	29	13
2602, 2702	46	9
2606, 2706	39	14

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
2609, 2709	23	10
2301, 2401, 2501	48	10
2305, 2405, 2505	46	14
503, 603, 703, 803	33	12
511, 611, 711, 811	17	11
501, 601, 701, 1508	44	13
1102, 1202, 1302, 1402	31	9
1106, 1206, 1306, 1406	30	14
1108, 1208, 1308, 1408	43	13
409, 509, 609, 709, 809	25	15
502, 602, 702, 802, 902	32	13
1104, 1204, 1304, 1404, 1504	48	11
404, 504, 604, 704, 804, 904	45	17
410, 510, 610, 710, 810, 910	20	12
303, 1009, 1109, 1209, 1309, 1509	34	14
1005, 1105, 1205, 1305, 1405, 1505	40	16
1010, 1110, 1210, 1310, 1410, 1510	17	9
1011, 1111, 1211, 1311, 1411, 1511	21	13
1701, 1801, 1901, 2001, 2101, 2201	47	11
1001, 1101, 1201, 1301, 1401, 1501, 1607	31	12
1003, 1103, 1203, 1303, 1403, 1503, 2002	37	12
1705, 1805, 1905, 2005, 2105, 2205, 3505	45	14

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
2802, 2902, 3002, 3102, 3202, 3302, 3402	48	9
2809, 2909, 3009, 3109, 3209, 3309, 3409	25	10
304, 2806, 2906, 3006, 3106, 3206, 3306, 3406	45	13
1703, 1803, 1903, 2003, 2103, 2203, 2303, 2403	35	10
1707, 1807, 1907, 2007, 2107, 2207, 2307, 2407	30	12
1007, 2704, 2804, 2904, 3004, 3104, 3204, 3304, 3404	31	14
1610, 1710, 1810, 1910, 2010, 2110, 2210, 2310, 2410	22	10
1712, 1812, 1912, 2012, 2112, 2212, 2312, 2412, 3501	34	13
2607, 2707, 2807, 2907, 3007, 3107, 3207, 3307, 3407	35	14
2608, 2708, 2808, 2908, 3008, 3108, 3208, 3308, 3408	18	9
903, 1602, 1702, 1802, 1902, 2102, 2202, 2302, 2402, 2502	35	12
1604, 1704, 1804, 1904, 2004, 2104, 2204, 2304, 2404, 2504	49	12
1606, 1706, 1806, 1906, 2006, 2106, 2206, 2306, 2406, 2506	35	15
1608, 1708, 1808, 1908, 2008, 2108, 2208, 2308, 2408, 2508	28	11
1611, 1711, 1811, 1911, 2011, 2111, 2211, 2311, 2411, 2511	21	12
406, 506, 606, 706, 806, 906, 1107, 1207, 1307, 1407, 1507	32	17

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
505, 605, 705, 805, 2603, 2703, 2803, 2903, 3003, 3103, 3203, 3303, 3403	41	16
301, 408, 507, 508, 607, 608, 707, 708, 807, 808, 908, 1112, 1212, 1312, 1412	28	14
412, 512, 612, 712, 812, 912, 2605, 2705, 2805, 2905, 3005, 3105, 3205, 3305, 3405	33	14
All other dwellings	28	13

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	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.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Lift car (No. 1)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No. 2)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No. 3)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No. 4)	-	-	light-emitting diode	connected to lift call button	No
Residents community room	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Building managers office	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Bike storage	ventilation supply only	interlocked to light	fluorescent	motion sensors	No
Ground floor lobby type	air conditioning system	time clock or BMS controlled	compact fluorescent	motion sensors	No
Hallway/lobby type	no mechanical ventilation	-	compact fluorescent	zoned switching with motion sensor	No
Amenties & toilets	ventilation exhaust only	time clock or BMS controlled	compact fluorescent	manual on / timer off	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 40
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 40
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 40
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 40

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

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Reticulated alternative water supply	-	Installation of plumbing to make provision for connection to Sydney Olympic Park Authority reticulated alternative water supply.	- irrigation of 5994 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Fire sprinkler system (No. 1)	-	-	-

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

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching with motion sensor	No
Switch room	ventilation supply only	interlocked to light	fluorescent	motion sensors	No
Garbage room	ventilation exhaust only	-	fluorescent	motion sensors	No
Plant or service room	ventilation supply only	interlocked to light	fluorescent	motion sensors	No

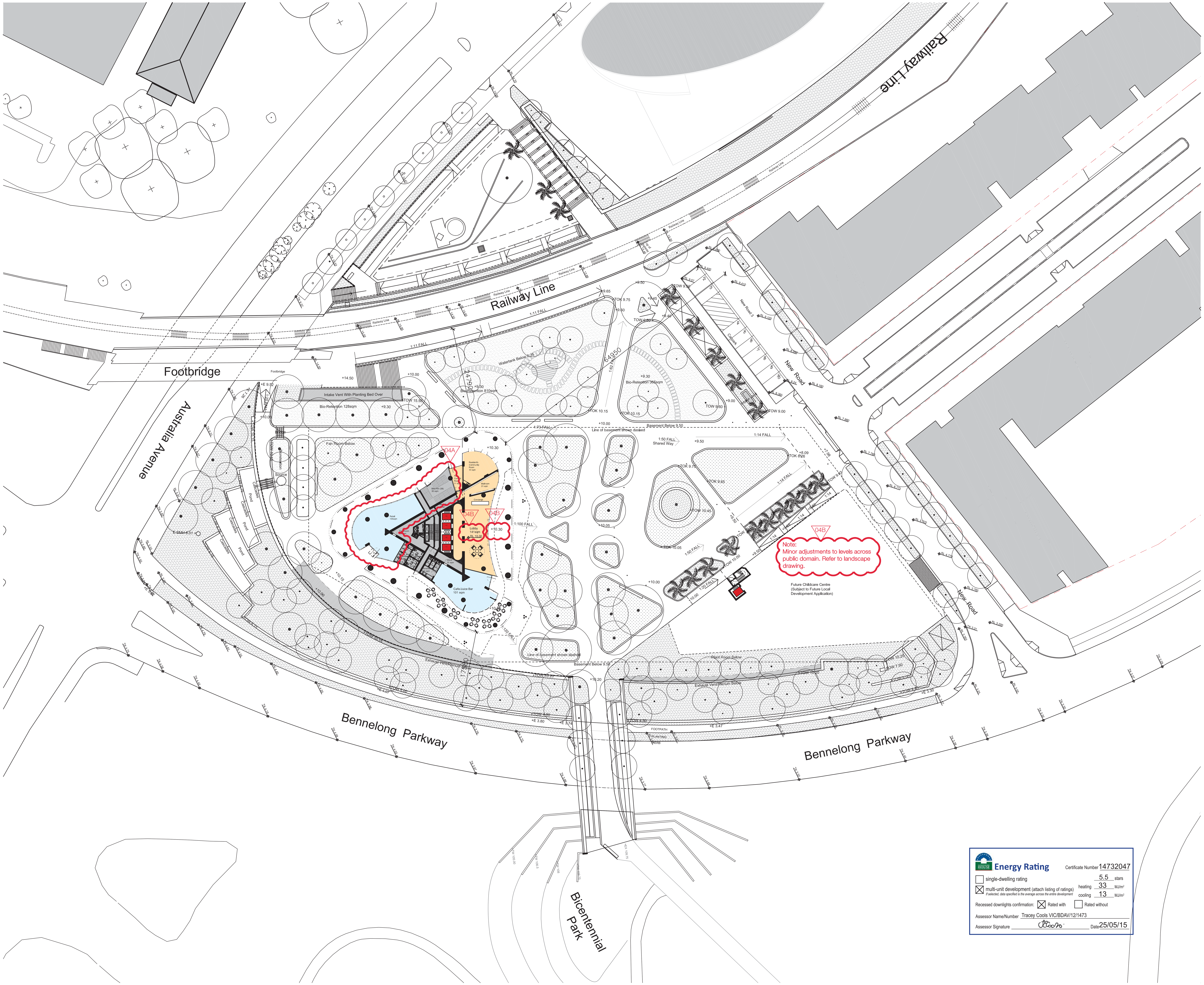
Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (a) Piping external to building: R1.0 (~38 mm); (b) Piping internal to building: R1.0 (~38 mm)

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).



Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components.

All drawings to be read in conjunction with all architectural documents and all other consultants documents.

Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.

All drawings may not be reproduced or distributed without prior permission from the architect.

Construction general	
Glazing	**Doors / windows:** Aluminium framed **single clear** glazing to internal windows that open to balconies / winter gardens U-Value: 6.57 (equal to or lower than) SHGC: 0.74 (+ or - 10%) Aluminium framed **double clear:** glazing to curtain walls, glazing to balcony edge that encloses to become a winter garden Top floor units that glazing is adjacent to balconies *Please see image of window mark-up attached which indicates typical location of window types.* U-Value: 4.11 (equal to or lower than) SHGC: 0.58 (+ or - 10%) Given values are NFRC, total window values
Roof / ceiling insulation	**Roof:** Concrete roof - No insulation No colour nominated **Ceiling:** Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above Note: It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area. If down lights are proposed at a later stage, BCA loss of insulation calculations will be required.
Wall / floor insulation	**External Wall:** Lightweight cladding to all external walls with R1.5 bulk insulation No colour nominated **Internal walls within units:** Plasterboard on studs - no insulation **Inter-tenancy walls / corridor:** 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation **Floors:** Concrete - R2.0 insulation to areas of open floor *Any suspended floor with an in-slab heating or cooling system must be insulated around the vertical edge of its perimeter and underneath the slab with insulation having an R-value of not less than 1.0.* **Floor coverings:** 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans All 3 & 4 bed apartments tiled throughout
Reticulated alternative water	Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)
Central hot water system	Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.

Revision Summary:

Revision 04 - Section 96 Amendments

A - Second retail tenancy proposed at ground floor. 94 bicycle parking spaces moved to basement.

B - Revision to landscape levels.
Tower lobby FFL lowered from10.70 to 10.30. Entrance gradient from new road to site reduced from 1:11 to 1:14.
Refer to Landscape drawings for list of detailed amendments.

NOT FOR CONSTRUCTION

Revision	Date	Description	Initial	Checked
04	18.05.15	s96 Application	KM	MLS
03	22.01.15	Development Application	KM	MLS
02	19.09.14	Development Application	KM	MLS
01	10.09.14	For Information	KM	MLS

Site 68
Sydney Olympic Park

Site Plan
Ground Plane

Scale	1:400 @ A1, 1:800 @ A3
Drawn	Checked
Project No.	S11611
Status	S96 Application
Plot Date	25/5/2015 12:04 PM
Plot File	S:\11600-11699\s11611_ecove_sopsite68\00_main\cad\plots\DA... ... .\A01.30[04].dwg
Drawing No.	[Revision]

A01.30[04]

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Bates Smart Architects Pty Ltd ABN 68 094 740 986

Energy Rating Certificate Number 14732047

☐ single-dwelling rating — 5.5 stars

☒ multi-unit development (attach listing of ratings) — heating 33 MJ/m², cooling 13 MJ/m²
If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number Tracey Cools VIC/BDAV/12/1473

Assessor Signature [signature] Date 25/05/15

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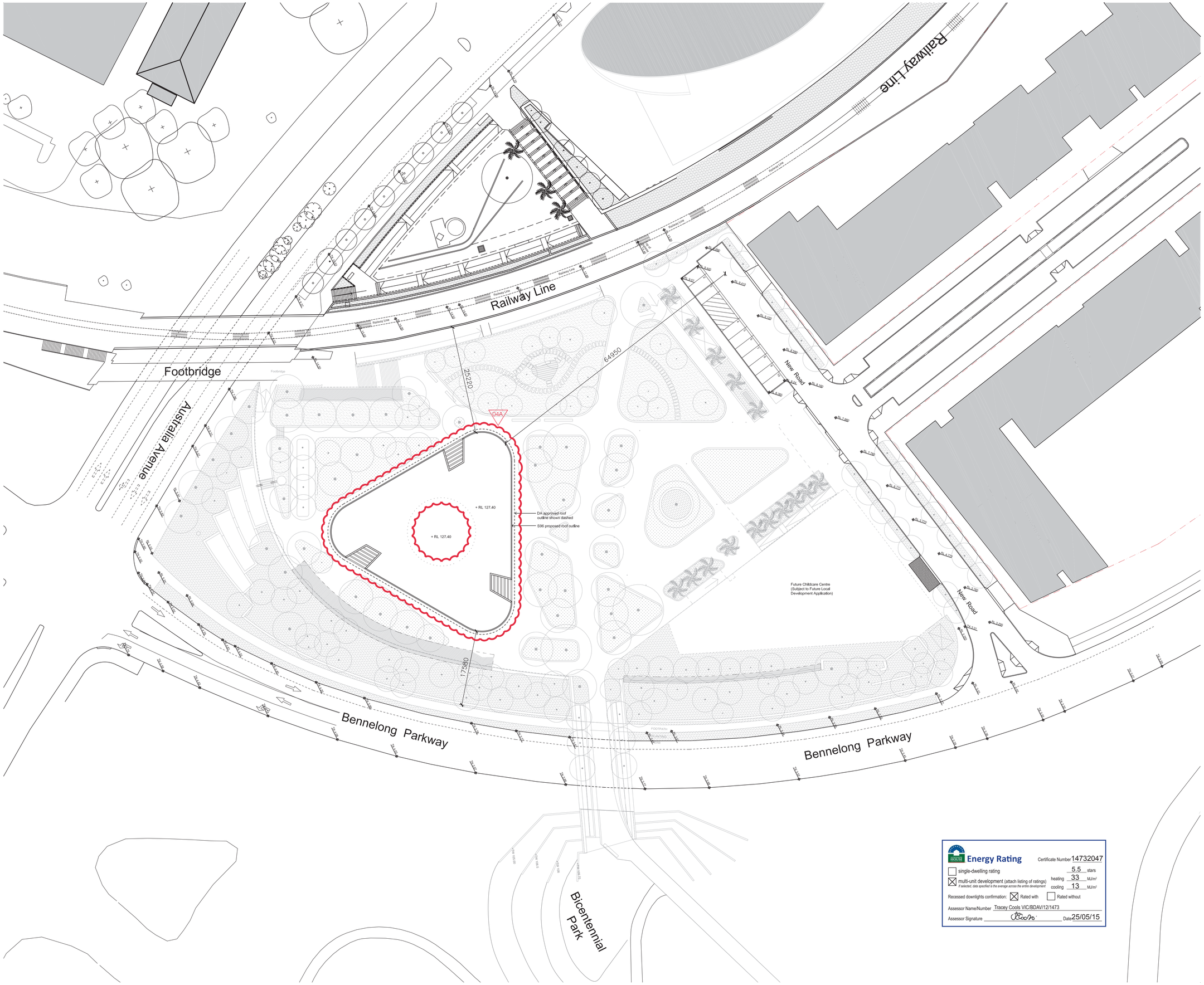

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components.

All drawings to be read in conjunction with all architectural documents and all other consultants documents.

Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.

Construction general	
Glazing	**Doors / windows:** Aluminium framed **single clear** glazing to internal windows that open to balconies / winter gardens U-Value≤ 5.57 (equal to or lower than) SHGC 0.61 (+/- 10%) Aluminium framed **double clear:** glazing to curtain walls, glazing to balcony edge that encloses to become a winter garden Top floor units that glazing is adjacent to balconies *Please see image of window mark-up attached which indicates typical location of window types.* U-Value≤ 4.11 (equal to or lower than) SHGC 0.58 (+/- 10%) Given values are NFRC, total window values
Roof / ceiling Insulation	**Roofs** Concrete roof - No insulation No colour nominated **Ceilings** Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above Notes It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area, If down lights are proposed at a later stage, BCA loss of insulation calculations will be required,
Wall / floor Insulation	**External Walls** lightweight cladding to all external walls with R1.5 bulk insulation No colour nominated **Internal walls within units:** Plasterboard on studs - no insulation **Inter-tenancy walls / corridor:** 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation **Floors:** Concrete - R2.0 insulation to areas of open floor *Any suspended floor with an in-slab heating or cooling system must be insulated around the vertical edge of its perimeter and underneath the slab with insulation having an R-value of not less than 0.5.* **Floor coverings:** 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans All 3 & 4 bed apartments tiled throughout
ReSculated alternative water	Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)
Central hot water system	Central gas-fired boiler with R1.0 (=38mm) insulation to ringmain and supply risers.

Revision Summary:

Revision 04 - Section 96 Amendments

A - Rooftop crown raised by 1800mm. Projecting lift machine room deleted. No change to total building height.

NOT FOR CONSTRUCTION

Revision	Date	Description	Initial	Checked
04	18.05.15	s96 Application	KM	MLS
03	27.01.15	Development Application	KM	MLS
02	19.09.14	Development Application	KM	MLS
01	10.09.14	For Information	KM	MLS

Site 68
Sydney Olympic Park

Site Plan
Roof Plan

Scale	1:400 @ A1, 1:800 @ A3
Drawn	Checked
Project No.	S11611
Status	s96 Application
Plot Date	25/5/2015 12:04 PM
Plot File	S:\11600-11699\s11611_ecove_sopsite68\00_main\cad\plots\DA-...-\A01.50[04].dwg
Drawing No.	[Revision]

A01.50[04]

Energy Rating Certificate Number 14732047

☐ single-dwelling rating — 5.5 stars

☒ multi-unit development (attach listing of ratings) — heating 33 MJ/m² — cooling 13 MJ/m²

If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number Tracey Cools VIC/BDAV/12/1473

Assessor Signature _____ Date 25/05/15

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Bates Smart Architects Pty Ltd ABN 68 094 740 986

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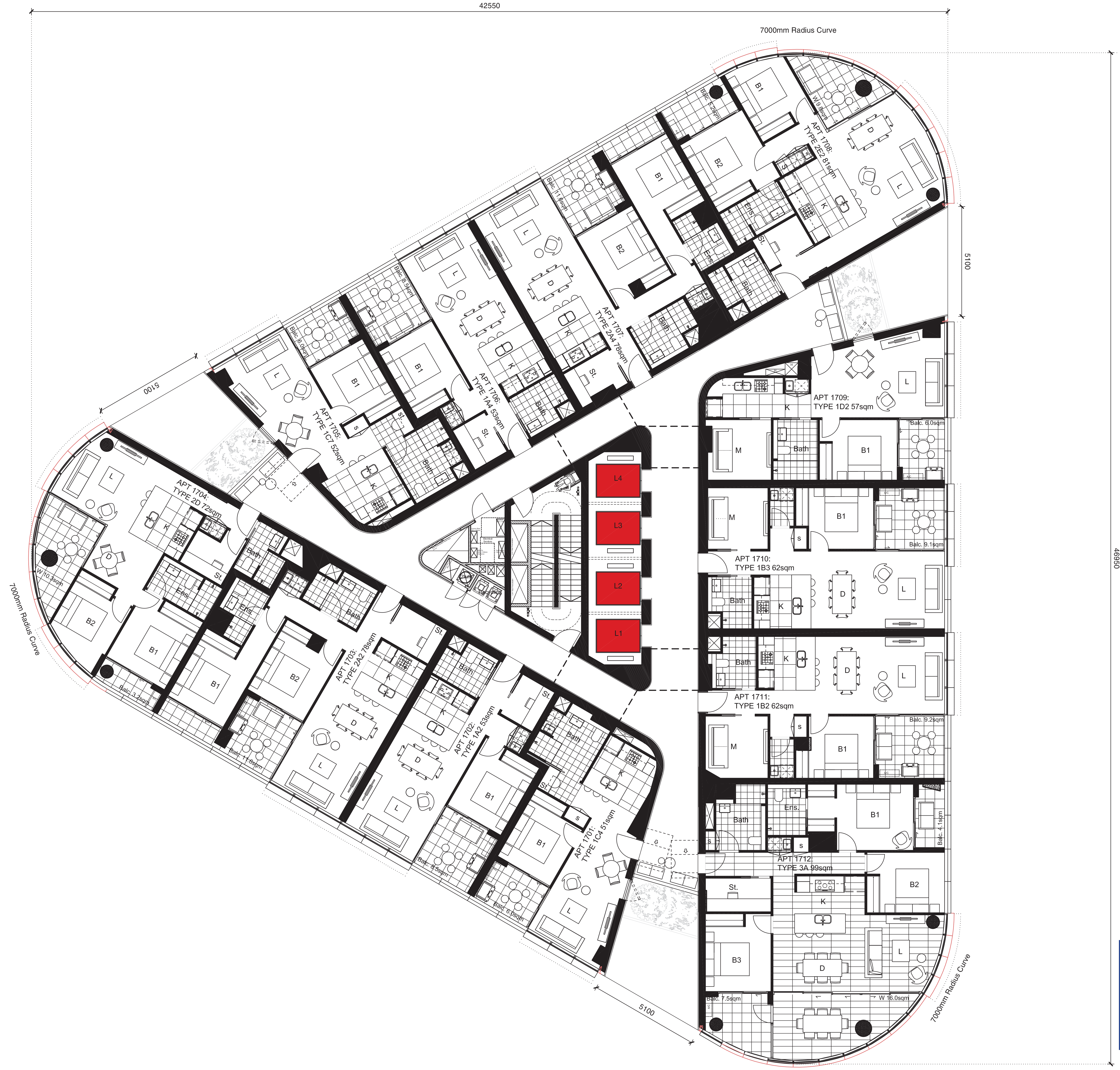

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Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.

Construction general	
Glazing	**Doors / windows:** Aluminium framed **single clear** glazing to internal windows that open to balconies / winter gardens U-Value: 6.57 (equal to or lower than) SHGC: 0.74 (+ or - 10%) Aluminium framed **double clear:** glazing to curtain walls, glazing to balcony edge that encloses to become a winter garden Top floor units that glazing is adjacent to balconies *Please see image of window mark-up attached which indicates typical location of window types.* U-Value: 4.11 (equal to or lower than) SHGC: 0.58 (+ or - 10%) Given values are NFRC, total window values
Roof / ceiling insulation	**Roof:** Concrete roof - No insulation No colour nominated **Ceiling:** Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above Note: It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area. If down lights are proposed at a later stage, BCA loss of insulation calculations will be required.
Wall / floor insulation	**External Wall:** Lightweight cladding to all external walls with R1.5 bulk insulation No colour nominated **Internal walls within units:** Plasterboard on studs - no insulation **Inter-tenancy walls / corridor:** 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation **Floors:** Concrete - R2.0 insulation to areas of open floor *Any suspended floor with an in-slab heating or cooling system must be insulated around the vertical edge of its perimeter and underneath the slab with insulation having an R-value of not less than 1.0.* **Floor coverings:** 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans All 3 & 4 bed apartments tiled throughout
Reticulated alternative water	Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)
Central hot water system	Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.

Revision Summary:

Revision 04 - Section 96 Amendments

A - Formerly levels 17-24.

NOT FOR CONSTRUCTION

Revision	Date	Description	Initial	Checked
04	18.05.15	S96 Application	JC	MLS
03	22.01.15	Development Application	KM	MLS
02	19.09.14	Development Application	KM	MLS
01	29.08.14	For Information	JC	MLS

Site 68
Sydney Olympic Park

General Arrangement Plan
Levels 17-25 (04A)

Scale	1:100 @ A1, 1:200 @A3
Drawn	Checked
Project No.	S11611
Status	s96 Application
Plot Date	25/5/2015 12:05 PM
Plot File	S:\11600-11699\s11611_ecove_sopsite68\00_main\cad\plots\DA... ...\A02.17[04].dwg
Drawing No.	[Revision]

A02.17[04]

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Energy Rating Certificate Number 14732047

- [ ] single-dwelling rating
- [x] multi-unit development (attach listing of ratings) *If selected, data specified is the average across the entire development*

5.5 stars
heating 33 MJ/m²
cooling 13 MJ/m²

Recessed downlights confirmation: [x] Rated with [ ] Rated without

Assessor Name/Number Tracey Cools VIC/BDAV/12/1473
Assessor Signature [signature] Date 25/05/15

Legend:
K: Kitchen
D: Dining
L: Living
B: Bedroom
S: Storage
M: Multimedia
St.: Study/Store
Ens: Ensuite

Balc: Balcony
W: Wintergarden

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Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.

Construction general	
Glazing	**Doors / windows:** Aluminium framed **single clear** glazing to internal windows that open to balconies / winter gardens U-Value: 5.57 (equal to or lower than) SHGC: 0.61 (+/- 10%) Aluminium framed **double clear:** glazing to curtain walls, glazing to balcony edge that encloses to become a winter garden Top floor units that glazing is adjacent to balconies *Please see shingle of window mark-up attached which indicates typical location of window types.* U-Value: 4.11 (equal to or lower than) SHGC: 0.50 (+/- 10%) Given values are NFRC, total window values
Roof / ceiling Insulation	**Roof:** Concrete roof - No insulation No colour nominated **Ceiling:** Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above Notes It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area, If down lights are proposed at a later stage, BCA loss of insulation calculations will be required,
Wall / floor Insulation	**External Walls:** lightweight cladding to all external walls with R1.5 bulk insulation No colour nominated **Internal walls within units:** Plasterboard on studs - no insulation **Inter-tenancy walls / corridor:** 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation **Floors:** Concrete - R2.0 insulation to areas of open floor *Any suspended floor with an in-slab heating or cooling system must be insulated around the vertical edge of its perimeter and underneath the slab with insulation having an R-value of not less than 0.5.* **Floor coverings:** 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans All 3 & 4 bed apartments tiled throughout
Reticulated alternative water	Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)
Central hot water system	Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.

Revision Summary:

Revision 01 - Section 96 Amendments

A - New Drawing, Same layouts as approved Levels 25-26.

NOT FOR CONSTRUCTION

Revision	Date	Description	Initial	Checked
01	18.05.15	S96 Application	JC	MLS

Site 68
Sydney Olympic Park

01A General Arrangement Plan
Levels 26-27

Scale	1:100 @ A1, 1:200 @A3
Drawn	Checked
Project No.	S11611
Status	s96 Application
Plot Date	25/5/2015 12:05 PM
Plot File	S:\11600-11699\s11611_ecove_sopsite68\00_main\cad\plots\DA... ...\A02.26[01].dwg
Drawing No.	[Revision]

A02.26[01]

Energy Rating Certificate Number 14732047

- ☐ single-dwelling rating — 5.5 stars
- ☒ multi-unit development (attach listing of ratings) — heating 33 MJ/m² — cooling 13 MJ/m²
  If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number: Tracey Cools VIC/BDAV/12/1473

Assessor Signature: _____ Date: 25/05/15

Legend:
K: Kitchen
D: Dining
L: Living
B: Bedroom
S: Storage
M: Multimedia
St.: Study/Store
Ens: Ensuite

Balc: Balcony
W: Wintergarden

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Construction general	
Glazing	**Doors / windows:** Aluminium framed **single clear** glazing to internal windows that open to balconies / winter gardens U-Value: 6.57 (equal to or lower than) SHGC: 0.68 (+/- 10%) Aluminium framed **double clear** glazing to curtain walls glazing to balcony edge that encloses to become a winter garden Top floor units that glazing is adjacent to balconies *Please see shingle of window mark-up attached which indicates typical location of window types.* U-Value: 4.11 (equal to or lower than) SHGC: 0.58 (+/- 10%) Given values are NFRC, total window values
Roof / ceiling Insulation	**Roof:** Concrete roof - No insulation No colour nominated **Ceiling:** Plasterboard ceiling - R2.0 bulk insulation to all units to top floor, balconies above & slot areas above Notes It has been assumed at DA stage that the area of all ceiling penetrations is less than 0.5% of the total ceiling area, If down lights are proposed at a later stage, BCA loss of insulation calculations will be required,
Wall / floor Insulation	**External Walls:** Lightweight cladding to all external walls with R1.5 bulk insulation No colour nominated **Internal walls within units:** Plasterboard on studs - no insulation **Inter-tenancy walls / corridor:** 75mm hebel power panel plasterboard lined with R1.5 acoustic insulation **Floors:** Concrete - R2.0 insulation to areas of open floor *Any suspended floor with an in-slab heating or cooling system must be insulated around the vertical edge of its perimeter and underneath the slab with insulation having an R-value of not less than 1.0.* **Floor coverings:** 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans All 3 & 4 bed apartments tiled throughout
Reticulated alternative water	Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)
Central hot water system	Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers.

Revision Summary:

Revision 01 - Section 96 Amendments

A - New Drawing. Same layouts as approved Levels 27-33.

NOT FOR CONSTRUCTION

Revision	Date	Description	Initial	Checked
01	18.05.15	S96 Application	JC	MLS

Site 68
Sydney Olympic Park

01A General Arrangement Plan
Levels 28-34

Scale	1:100 @ A1, 1:200 @A3
Drawn	Checked
Project No.	S11611
Status	s96 Application
Plot Date	25/5/2015 12:05 PM
Plot File	S:\11600-11699\s11611_ecove_sopsite68\00_main\cad\plots\DA... ...\A02.28[01].dwg
Drawing No.	[Revision]

A02.28[01]

Energy Rating

Certificate Number 14732047

☐ single-dwelling rating — 5.5 stars

☒ multi-unit development (attach listing of ratings) — heating 33 MJ/m² — cooling 13 MJ/m²

If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number Tracey Cools VIC/BDAV/12/1473

Assessor Signature _____ Date 25/05/15

Legend:
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B: Bedroom
S: Storage
M: Multimedia
St.: Study/Store
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Balc: Balcony
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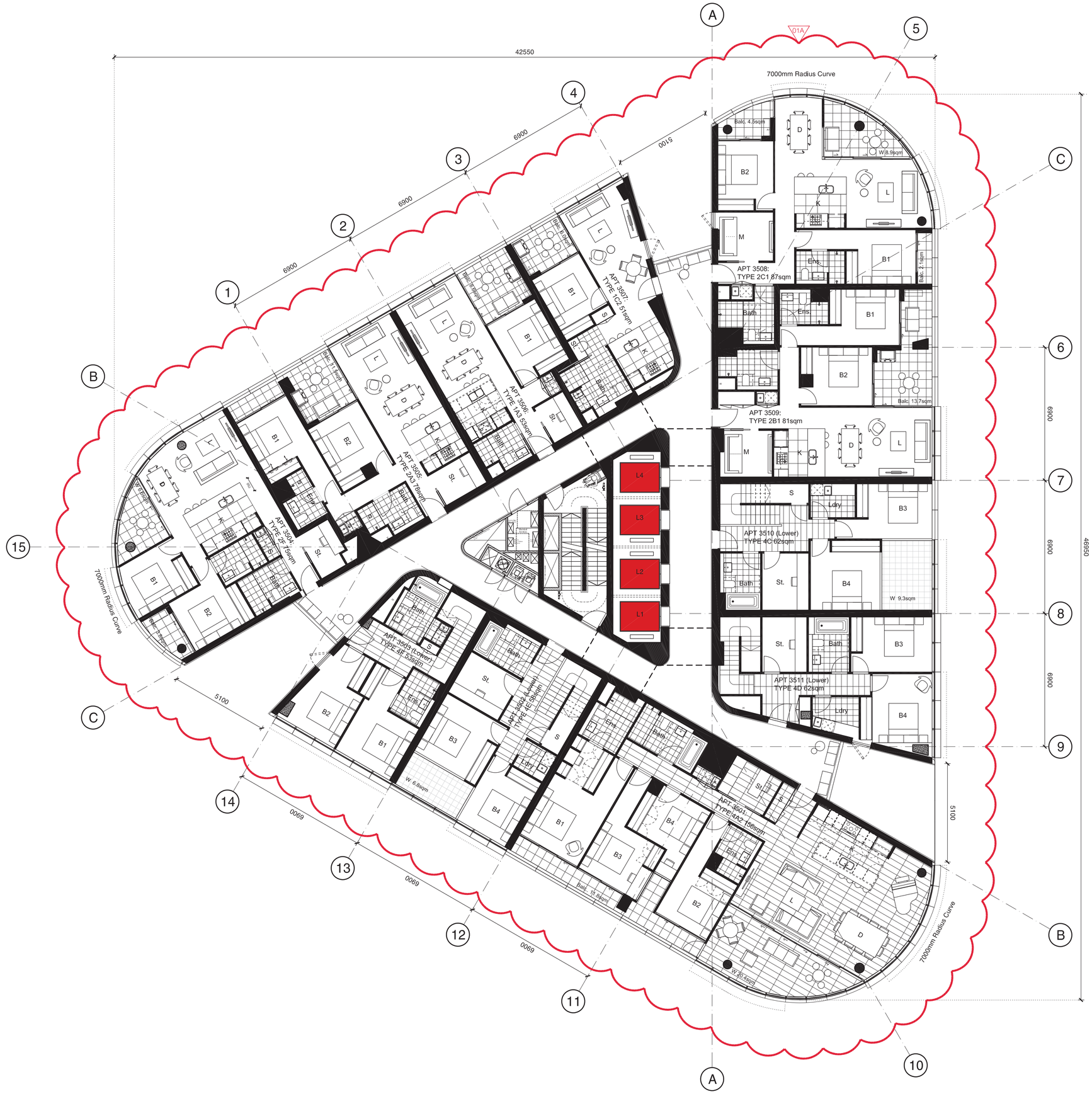

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Construction general	
Glazing	**Doors / windows:** Aluminium framed **single clear** glazing to internal windows that open to balconies / winter gardens U-Value: 6.57 (equal to or lower than) SHGC: 0.61 (+/- 10%) Aluminium framed **double clear:** glazing to curtain walls, glazing to balcony edge that encloses to become a winter garden Top floor units that glazing is adjacent to balconies *Please see shedge of window mark-up attached which indicates typical location of window types.* U-Value: 4.11 (equal to or lower than) SHGC: 0.50 (+/- 10%) Given values are NFRC, total window values
Roof / ceiling Insulation	**Roof:** Concrete roof - No insulation No colour nominated **Ceiling:** Plasterboard ceiling - R2,0 bulk insulation to all units to top floor, balconies above & slot areas above Notes It has been assumed at DA stage that the area of all ceiling penetrations is less than 0,5% of the total ceiling area, If down lights are proposed at a later stage, BCA loss of insulation calculations will be required,
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Reticulated alternative water	Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)
Central hot water system	Central gas-fired boiler with R1,0 (~38mm) insulation to ringmain and supply risers.

Revision Summary:

Revision 01 - Section 96 Amendments

A - New Drawing, New residential floorplate.

NOT FOR CONSTRUCTION

Revision	Date	Description	Initial	Checked
01	18.05.15	S96 Application	JC	MLS

Site 68
Sydney Olympic Park

General Arrangement Plan
Levels 35

Scale	1:100 @ A1, 1:200 @A3
Drawn	Checked
Project No.	S11611
Status	s96 Application
Plot Date	25/5/2015 12:06 PM
Plot File	S:\11600-11699\s11611_ecove_sopsite68\00_main\cad\plots\DA-...-\A02.35[01].dwg
Drawing No.	[Revision]

A02.35[01]

Energy Rating Certificate Number 14732047

☐ single-dwelling rating — 5.5 stars

☒ multi-unit development (attach listing of ratings) — heating 33 MJ/m² — cooling 13 MJ/m²

If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number: Tracey Cools VIC/BDAV/12/1473

Assessor Signature: _____ Date: 25/05/15

Legend:
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B: Bedroom
S: Storage
M: Multimedia
St.: Study/Store
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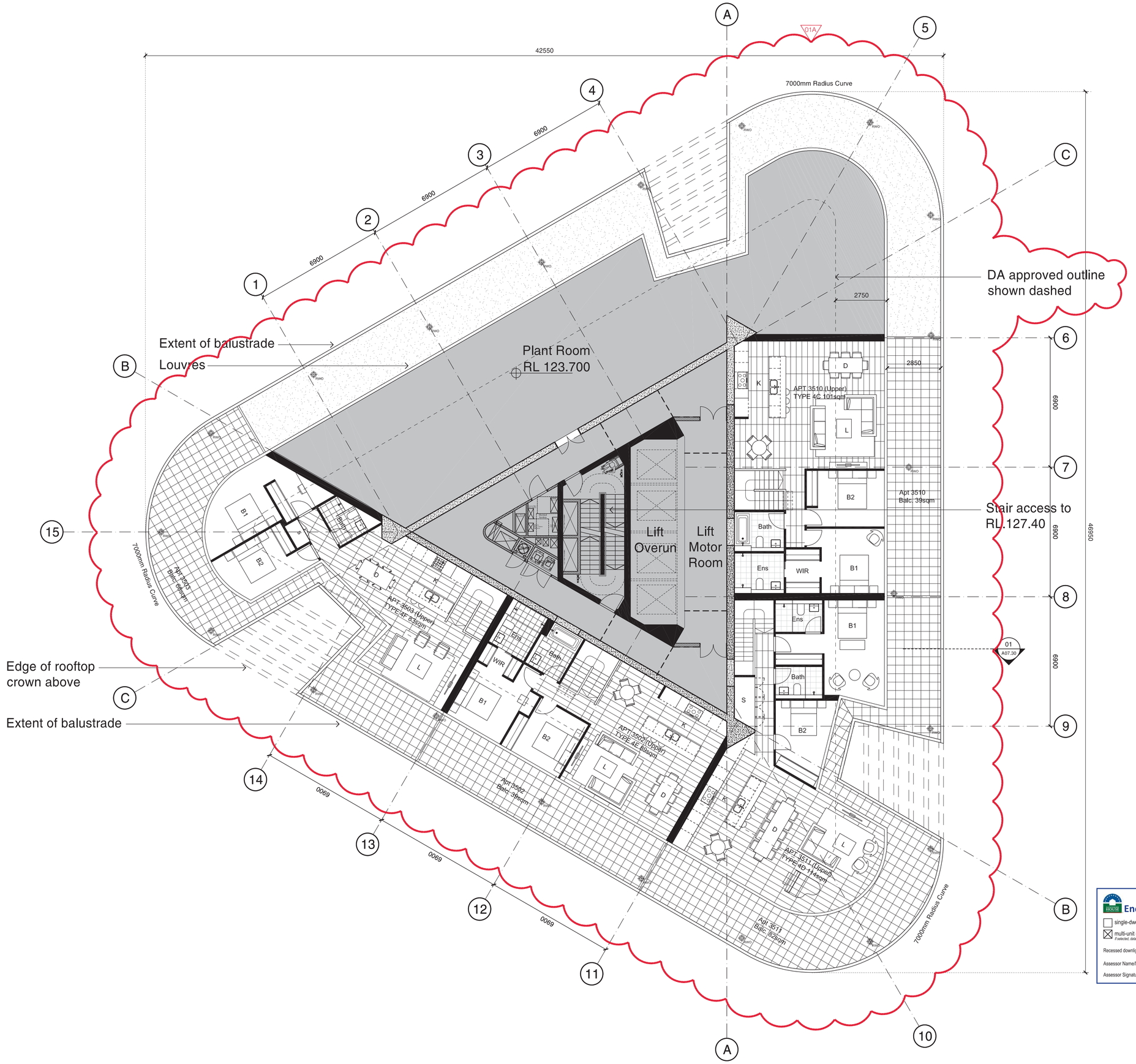

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Construction general	
Glazing	**Doors / windows:** Aluminium framed **single clear** glazing to internal windows that open to balconies / winter gardens U-Value: 5.57 (equal to or lower than) SHGC: 0.61 (+/- 10%) Aluminium framed **double clear:** glazing to outlet walls glazing to balcony edge that encloses to become a winter garden Top floor units that glazing is adjacent to balconies *Please see shedge of window mark-up attached which indicates typical location of window types.* U-Value: 4.11 (equal to or lower than) SHGC: 0.56 (+/- 10%) Given values are NFRC, total window values
Roof / ceiling Insulation	**Roof:** Concrete roof - No insulation No colour nominated **Ceiling:** Plasterboard ceiling - R2,0 bulk insulation to all units to top floor, balconies above & slot areas above Notes: It has been assumed at DA stage that the area of all ceiling penetrations is less than 0,5% of the total ceiling area, If down lights are proposed at a later stage, BCA loss of insulation calculations will be required,
Wall / floor Insulation	**External Walls:** lightweight cladding to all external walls with R1,5 bulk insulation No colour nominated **Internal walls within units:** Plasterboard on studs - no insulation **Inter-tenancy walls / corridor:** 75mm hollel power panel plasterboard lined with R1,5 acoustic insulation **Floors:** Concrete - R2,0 insulation to areas of open floor *Any suspended floor with an in-slab heating or cooling system must be insulated around the vertical edge of its perimeter and underneath the slab with insulation having an R-value of not less than 0.0.* **Floor coverings:** 1 & 2 bed apartments - tiles to wets areas, carpet to bedrooms and living areas as per plans All 3 & 4 bed apartments tiled throughout
Reticulated alternative water	Alternative water supply available from Sydney Olympic Park Authority to be used for the irrigation of all landscaping & all toilets within the building (No rainwater tank required for BASIX compliance)
Central hot water system	Central gas-fired boiler with R1,0 (~38mm) insulation to ringmain and supply risers.

Revision Summary:

Revision 01 - Section 96 Amendments

A - New drawing. Reduced plant extents, residential uses proposed to north & east frontages. Set back 2850mm from facade.

NOT FOR CONSTRUCTION

Revision	Date	Description	Initial	Checked
01	18.05.15	S96 Application	JC	MLS

Site 68
Sydney Olympic Park

General Arrangement Plan
Level 36

Scale	1:100 @ A1, 1:200 @A3
Drawn	Checked
Project No.	S11611
Status	s96 Application
Plot Date	25/5/2015 12:06 PM
Plot File	S:\11600-11699\s11611_ecove_sopsite68\00_main\cad\plots\DA-... ...\A02.36[01].dwg
Drawing No.	[Revision]

A02.36[01]

Energy Rating

Certificate Number 14732047

☐ single-dwelling rating — 5.5 stars

☒ multi-unit development (attach listing of ratings) — heating 33 MJ/m² — cooling 13 MJ/m²

If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number Tracey Cools VIC/BDAV/12/1473

Assessor Signature _____ Date 25/05/15

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