



**PRESBYTERIAN AGED CARE**

**BASIX ANALYSIS**

**29/03/2016**

The following memo outlines the proposed BASIX options for the proposed development at 2 Cooper Street, Paddington to achieve BASIX Certification based on changes to the previous BASIX.

The previous BASIX Certificate, lodged Wednesday, 10 November 2010, achieved the following compliance score.

	PROJECT SCORE	TARGET	COMPLIANCE
Water	47	40	✓
Thermal Comfort	Pass	Pass	✓
Energy	30	30	✓

The following options have been noted as changes to the previous BASIX certificate:

ITEM	DA BASIX	COMPLIANCE STATUS	COMMENTS	PROJECT APPROVAL REQUIREMENTS
Kitchen cooktop/oven appliance	Gas cooktop & electric oven	Confirmed inclusion		
Appliances Energy Efficiency Measures	3.5 star Refrigerator 3.5 star Dishwasher 4.5 star Clothes Washer 4.5 star Clothes Dryer	No Refrigerator 3.5 star Dishwasher No Clothes Washer No Clothes Dryer		
Fixtures Water Efficiency Measures	4.0 star Clothes washers 4.0 star Dishwashers	No Clothes washers 4.0 star Dishwashers		
Active power factor correction (PFC)	Active power factor correction (PFC) confirmed	Confirmed inclusion		Power factor correction will be provided at the main switch board(s) – Cardno ESD Report Rev 4 10/11/2010 page 15
Car park lighting type and efficiency measure	Fluorescent and time clock or motion sensors	Confirmed inclusion		Internal lighting will be controlled by a “C-BUS” automated lighting control system or equivalent – Cardno ESD Report Rev 4 10/11/2010 page 15
Ground floor/ hallway/ lobby lighting type and efficiency measure	Fluorescent and time clock or motion sensors	LED and time clock or motion sensors		Internal lighting will be controlled by a “C-BUS” automated lighting control system or equivalent – Cardno ESD Report Rev 4 10/11/2010 page 15
Lift lighting type and efficiency measure	LED and connected to lift call button	Confirmed inclusion		Internal lighting will be controlled by a “C-BUS” automated lighting control system or equivalent – Cardno ESD Report Rev 4 10/11/2010 page 15
Alternative energy supply	10 peak kW photovoltaic system	Confirmed inclusion		The photovoltaic modules will be mounted on rooftops where they will be out of sight and produce the optimum energy output – Cardno ESD Report Rev 4 10/11/2010 page 18 ...initiatives to be incorporated into the project. These initiatives include the installation of photovoltaic solar energy system... – Director-General's Environmental Assessment Report Section 75I March 2012 page 12
Lift type	Geared traction with V V A C motor	Geared traction with V V V F motor		

ITEM	DA BASIX	COMPLIANCE STATUS	COMMENTS	PROJECT APPROVAL REQUIREMENTS
Bathroom, kitchen and laundry ventilation system and operation control	<p>Bathroom motorised damper into central duct + VSD – interlocked to light</p> <p>Kitchen individual fan, not ducted – manual switch on/off</p> <p>Laundry motorised damper into central duct + VSD – manual switch on/off</p>	<p>ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light</p> <p>RACF – Bathroom central ducted</p> <p>Kitchen no mechanical ventilation (ie. natural)</p> <p>Laundry Individual fan, ducted to façade or roof – interlocked to light</p>		
Car park ventilation system type and efficiency measure	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Confirmed inclusion		<p><i>Car park exhaust and supply will be provided for the basement car parking areas – Cardno ESD Report Rev 4 10/11/2010 page 16</i></p> <p><i>The carpark ventilation system will be provided with Variable Speed Drives (VSD) motors and Co sensors – Cardno ESD Report Rev 4 10/11/2010 page 16</i></p>
Ground floor/ hallway/ lobby type and efficiency measure	Air conditioning system - time clock or BMS controlled	<p>Pool/spa and community rooms - Air conditioning system - time clock or BMS controlled</p> <p>Plant room - ventilation supply and exhaust – none i.e. continuous</p> <p>Lobby areas excluding Brown Street L2-7, GKL and RACF – ventilation supply only - time clock or BMS controlled</p>		

ITEM	DA BASIX	COMPLIANCE STATUS	COMMENTS	PROJECT APPROVAL REQUIREMENTS
Cooling and heating system	Central cooling and heating system – variable refrigerant volume units, electric driven compressor with air sourced condenser/evaporator and COP < 3.5	1-phase air-conditioning with a cooling EER 3.5 – 4.0, and heating EER > 4.0		Heating and cooling energy for the independent living units and aged care facility will be provided by Variable Refrigerant Volume (VRV) air-conditioning systems – Cardno ESD Report Rev 4 10/11/2010 page 16 Bedrooms will be served by a mixed mode ventilation strategy – Cardno ESD Report Rev 4 10/11/2010 page 16
Fixtures Water Efficiency Measures	3 star (>6 but <=7.5 L/min) Showerhead 4.0 star Toilet 4.0 star Kitchen taps 4.0 star Bathroom taps	(>7.5 but <=9 L/min) Showerhead 4.0 star Toilet 4.0 star Kitchen taps 5.0 star Bathroom taps		The following measures have been incorporated into the design: 3 star showerheads, 5 star dual flush toilets, 5 star kitchen taps, 5 star bathroom taps – Cardno ESD Report Rev 4 10/11/2010 page 21
Hot water system	Central hot water system - Electric heat pump – gas boosted	Central hot water system - Gas instantaneous RACF L7 and Stephen Street – 6 star gas instantaneous		...initiatives to be incorporated into the project. These initiatives include the installation of ... ,domestic or water heat pumps... – Director-General's Environmental Assessment Report Section 75I March 2012 page 12
Central water tank – rainwater or stormwater	Stephen Street Building - 20,000L, 500m <sup>2</sup> run-off roof area, irrigation of 2,000 m <sup>2</sup> common landscaped area  Brown St ILU - 20,000L, 700m <sup>2</sup> run-off roof area, irrigation of 2,000 m <sup>2</sup> common landscaped area	Confirmed inclusion		Rain water will be collected from roof runoff and piped to storage tanks. Recycled water will be used on an unrestricted basis for irrigation and garden watering – Cardno ESD Report Rev 4 10/11/2010 page 21

ITEM	DA BASIX	COMPLIANCE STATUS	COMMENTS	PROJECT APPROVAL REQUIREMENTS
Pool and spa heating system	Pool solar (gas boosted) 24m <sup>2</sup> collector area  Spa solar (gas boosted) 8m <sup>2</sup> collector area	Gas		<i>Hot water for the pool and spa will be generated using one of the commercially available solar collector technologies – Cardno ESD Report Rev 4 10/11/2010 page 20</i>  <i>...initiatives to be incorporated into the project. These initiatives include the installation of ... ,solar hot water heating... – Director-General's Environmental Assessment Report Section 75I March 2012 page 12</i>
<b>TOTAL SCORE</b>	47% Water Score 30% Energy Score	35% Water Score 13% Energy Score		

ITEM	COMPLIANCE STATUS	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	OPTION 6	OPTION 7	OPTION 8	OPTION 9	OPTION 10
Kitchen cooktop/oven appliance	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven	Gas cooktop & electric oven
Appliances Energy Efficiency Measures	No Refrigerator 3.5 star Dishwasher No Clothes Washer No Clothes Dryer	No Refrigerator 3.5 star Dishwasher No Clothes Washer No Clothes Dryer	No Refrigerator 3.5 star Dishwasher No Clothes Washer No Clothes Dryer	4.0 star Refrigerator 4.5 star Dishwasher No Clothes Washer No Clothes Dryer	No Refrigerator 4.5 star Dishwasher 5.0 star Clothes Washer 2.0 star Clothes Dryer	No Refrigerator 4.5 star Dishwasher 5.0 star Clothes Washer 6.0 star Clothes Dryer	No Refrigerator 3.5 star Dishwasher No Clothes Washer No Clothes Dryer	No Refrigerator 3.5 star Dishwasher No Clothes Washer No Clothes Dryer	4.0 star Refrigerator 4.5 star Dishwasher No Clothes Washer No Clothes Dryer	No Refrigerator 4.5 star Dishwasher 5.0 star Clothes Washer 2.0 star Clothes Dryer	No Refrigerator 4.5 star Dishwasher 5.0 star Clothes Washer 6.0 star Clothes Dryer
Fixtures Water Efficiency Measures	No Clothes washers 4.0 star Dishwashers	No Clothes washers 4.0 star Dishwashers	No Clothes washers 4.0 star Dishwashers	No Clothes washers 4.0 star Dishwashers	4.0 star Clothes washers 4.0 star Dishwashers	4.0 star Clothes washers 4.0 star Dishwashers	No Clothes washers 4.0 star Dishwashers	No Clothes washers 4.0 star Dishwashers	No Clothes washers 4.0 star Dishwashers	4.0 star Clothes washers 4.0 star Dishwashers	4.0 star Clothes washers 4.0 star Dishwashers
Active power factor correction (PFC)	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed	Active power factor correction (PFC) confirmed
Car park lighting type and efficiency measure	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors	Fluorescent and time clock or motion sensors
Ground floor/hallway/lobby lighting type and efficiency measure	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors	LED and time clock or motion sensors
Lift lighting type and efficiency measure	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button	LED and connected to lift call button
Alternative energy supply	10 peak kW photovoltaic system	48 peak kW photovoltaic system (i.e. 38 peak kW additional)	41 peak kW photovoltaic system (i.e. 31 peak kW additional)	10 peak kW photovoltaic system	32 peak kW photovoltaic system (i.e. 22 peak kW additional)	20 peak kW photovoltaic system (i.e. 10 peak kW additional)	80 peak kW photovoltaic system (i.e. 70 peak kW additional)	73 peak kW photovoltaic system (i.e. 63 peak kW additional)	42 peak kW photovoltaic system (i.e. 32 peak kW additional)	61 peak kW photovoltaic system (i.e. 51 peak kW additional)	48 peak kW photovoltaic system (i.e. 38 peak kW additional)
Lift type	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor	Geared traction with V V V F motor
Bathroom, kitchen and laundry ventilation system and operation control	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted	ILU – Bathroom individual fan, ducted to façade or roof – interlocked to light RACF – Bathroom central ducted
	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)	Kitchen no mechanical ventilation (ie. natural)
	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light	Laundry Individual fan, ducted to façade or roof – interlocked to light
Car park ventilation system type and efficiency measure	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan	Ventilation (supply and exhaust) - carbon monoxide monitor + VSD fan

