

# BESS Report

Built Environment Sustainability Scorecard

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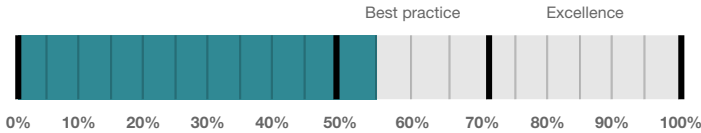


This BESS report outlines the sustainable design proposals and evidence submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Banyule City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

**Note:** This is a DRAFT and not suitable for submission to council

## Your BESS Score



# 55%

## Project details

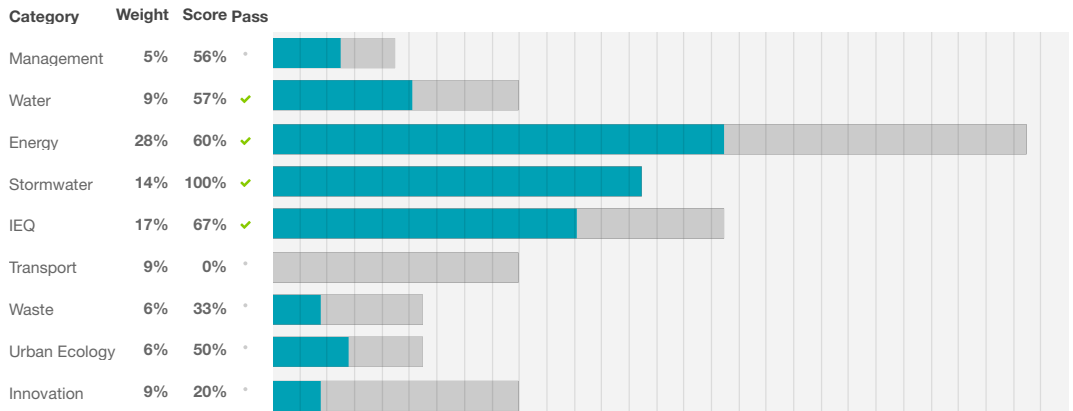
Address	Catholic Ladies College Eltham VIC 3095
Project no	A3427FE9
BESS Version	BESS-5
Site type	Non-residential development
Account	lukep@brt.com.au
Application no.	
Site area	571 m <sup>2</sup>
Building floor area	570.0 m <sup>2</sup>
Date	26 April 2021
Software version	1.7.0-B.358



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## Performance by category

● Your development ● Maximum available



## Dwellings & Non Res Spaces

### Non-Res Spaces

Name	Quantity	Area	% of total area
<b>Other building</b>			
Other building 1	1	570 m <sup>2</sup>	100%
<b>Total</b>	<b>1</b>	<b>570 m<sup>2</sup></b>	<b>100%</b>

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### Supporting information

#### Floorplans & elevation notes

Credit	Requirement	Response	Status
Management 3.2	Individual utility meters annotated		-
Water 3.1	Water efficient garden annotated		-
Energy 4.2	Floor plans showing location of photovoltaic panels as described.		-
Stormwater 1.1	Location of any stormwater management systems used in STORM or MUSIC modelling (e.g. Rainwater tanks, raingarden, buffer strips)		-
Urban Ecology 1.1	Size and location of communal spaces		-
Urban Ecology 2.1	Vegetated areas		-
Urban Ecology 2.3	Green facade		-

#### Supporting evidence

Credit	Requirement	Response	Status
Management 2.3	Preliminary modelling report		-
Management 2.4	Section J glazing assessment		-
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Energy 3.7	Provide a written description of the average lighting power density to be installed in the development and specify the lighting type(s) to be used.		-
Energy 4.2	Specifications of the solar photovoltaic system(s).		-
Stormwater 1.1	STORM report or MUSIC model	Uploaded 21-0216_19 Diamond Street Eltham VIC_MUSIC Screendump_SPEL01.JPG MUSIC Model <a href="https://bess.net.au/t/865AA8DA">https://bess.net.au/t/865AA8DA</a>	✓
IEQ 1.4	A short report detailing assumptions used and results achieved.		-
Waste 1.1	Report detailing how the existing building is being reused on-site		-

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**Credit summary**

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**Management Overall contribution 4.5%**

		<b>56%</b>
1.1 Pre-Application Meeting		0%
2.3 Thermal Performance Modelling - Non-Residential		100%
2.4 Thermal Performance Modelling - Non-Residential		100%
3.2 Metering		100%
3.3 Metering		0%
4.1 Building Users Guide		100%

**Water Overall contribution 9.0%**

		<b>Minimum required 50%</b>	<b>57%</b>	✓ Pass
1.1 Potable water use reduction			40%	
3.1 Water Efficient Landscaping			100%	
4.1 Building Systems Water Use Reduction			100%	

**Energy Overall contribution 27.5%**

		<b>Minimum required 50%</b>	<b>60%</b>	✓ Pass
1.1 Thermal Performance Rating - Non-Residential			38%	
2.1 Greenhouse Gas Emissions			100%	
2.2 Peak Demand			100%	
2.3 Electricity Consumption			100%	
2.4 Gas Consumption			N/A	⚡ Scoped Out
No gas connection in use				
3.1 Carpark Ventilation			0%	
3.2 Hot Water			100%	
3.7 Internal Lighting - Non-Residential			100%	
4.1 Combined Heat and Power (cogeneration / trigeneration)			N/A	⚡ Scoped Out
No cogeneration or trigeneration system in use.				
4.2 Renewable Energy Systems - Solar			100%	
4.4 Renewable Energy Systems - Other			N/A	⊘ Disabled
None				

**Stormwater Overall contribution 100%**

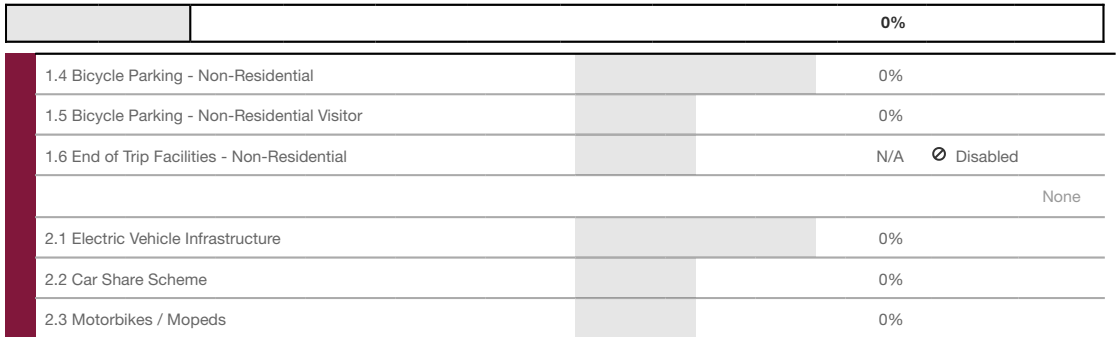
		<b>Minimum required 100%</b>	<b>100%</b>	✓ Pass
1.1 Stormwater Treatment			100%	

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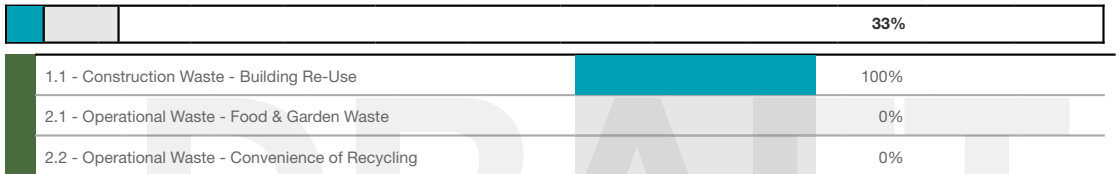
**IEQ Overall contribution 16.5%**



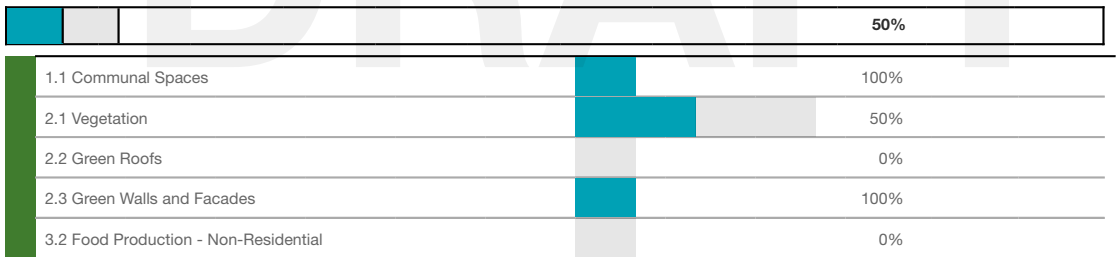
**Transport Overall contribution 9.0%**



**Waste Overall contribution 5.5%**



**Urban Ecology Overall contribution 5.5%**



**Innovation Overall contribution 9.0%**



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**Credit breakdown**

**Management** Overall contribution 3%

Section Notes: CLC - Wild

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<b>1.1 Pre-Application Meeting</b>		0%
Score Contribution	This credit contributes 32.3% towards the category score.	
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	
<b>2.3 Thermal Performance Modelling - Non-Residential</b>		100%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2019 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Other building	Yes	
<b>2.4 Thermal Performance Modelling - Non-Residential</b>		100%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Has a preliminary Section J facade assessment been undertaken?	
Question	Criteria Achieved ?	
Other building	Yes	
<b>3.2 Metering</b>		100%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Have utility meters been provided for all individual commercial tenants?	
Question	Criteria Achieved ?	
Other building	Yes	
<b>3.3 Metering</b>		0%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Have all major common area services been separately submetered?	
Question	Criteria Achieved ?	
Other building	No	
<b>4.1 Building Users Guide</b>		100%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Will a building users guide be produced and issued to occupants?	
Question	Criteria Achieved ?	
Project	Yes	

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**Water** Overall contribution 5% Minimum required 50%

**Water Approach**

What approach do you want to use Water? Use the built in calculation tools

**Project Water Profile Question**

Do you have a reticulated third pipe or an on-site water recycling system? No  
 Are you installing a swimming pool? No  
 Are you installing a rainwater tank? No

**Water fixtures, fittings and connections**

Showerhead Scope out  
 Bath Scope out  
 Kitchen Taps >= 5 Star WELS rating  
 Bathroom Taps >= 5 Star WELS rating  
 Dishwashers Scope out  
 WC >= 4 Star WELS rating  
 Urinals Scope out  
 Washing Machine Water Efficiency Scope out  
 Which non-potable water source is the dwelling/space connected to? -1  
 Non-potable water source connected to Toilets No  
 Non-potable water source connected to Laundry (washing machine) No  
 Non-potable water source connected to Hot Water System No

**1.1 Potable water use reduction** 40%

Score Contribution This credit contributes 71.4% towards the category score.

Criteria What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.

Output Reference

Project 488 kL

Output Proposed (excluding rainwater and recycled water use)

Project 358 kL

Output Proposed (including rainwater and recycled water use)

Project 358 kL

Output % Reduction in Potable Water Consumption

Project 26 %

Output % of connected demand met by rainwater

Project 88 %

Output How often does the tank overflow?

Project Very Often

Output Opportunity for additional rainwater connection

Project 227 kL

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<b>3.1 Water Efficient Landscaping</b>		100%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Will water efficient landscaping be installed?	
Question	Criteria Achieved ?	
Project	Yes	
<b>4.1 Building Systems Water Use Reduction</b>		100%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Where applicable, have measures been taken to reduce potable water consumption by >80% in the buildings air-conditioning chillers and when testing fire safety systems?	
Question	Criteria Achieved ?	
Project	Yes	

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**Energy** Overall contribution 16% Minimum required 50%

Use the BESS Deem to Satisfy (DtS) method for Energy?	Yes
Do all exposed floors and ceilings (forming part of the envelope) demonstrate a minimum 10% improvement in required NCC2019 insulation levels (total R-value upwards and downwards)?	Yes
Does all wall and glazing demonstrate meeting the required NCC2019 facade calculator (or better than the total allowance)?	Yes
Are heating and cooling systems within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available?	Yes
Are water heating systems within one star of the best available, or 85% or better than the most efficient equivalent capacity unit?	Yes

**Non-Residential Spaces Energy Profile**

Heating, Cooling & Comfort Ventilation - Electricity Reference fabric & services	-
Heating, Cooling & Comfort Ventilation - Electricity Proposed fabric & reference services	-
Heating, Cooling & Comfort Ventilation - Electricity Proposed fabric & services	-
Heating - Wood Reference fabric & services	-
Heating - Wood Proposed fabric & reference services	-
Heating - Wood Proposed fabric & services	-
Hot Water - Electricity Reference	-
Hot Water - Electricity Proposed	-
Lighting - Reference	-
Lighting - Proposed	-
Peak Thermal Cooling Load Reference fabric and services	-
Peak Thermal Cooling Load Proposed fabric and services	-

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**Solar Photovoltaic system**

System Size (lesser of inverter and panel capacity)	PV System	15.0 kW peak
Orientation (which way is the system facing)?	PV System	East
Inclination (angle from horizontal)	PV System	38.0 Angle (degrees)

**1.1 Thermal Performance Rating - Non-Residential** 38%

Score Contribution	This credit contributes 40.0% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2019 Section J)?

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<b>2.1 Greenhouse Gas Emissions</b>	100%
Score Contribution	This credit contributes 10.0% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?
<b>2.2 Peak Demand</b>	100%
Score Contribution	This credit contributes 5.0% towards the category score.
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?
<b>2.3 Electricity Consumption</b>	100%
Score Contribution	This credit contributes 10.0% towards the category score.
Criteria	What is the % reduction in annual electricity consumption against the benchmark?
<b>2.4 Gas Consumption</b>	N/A ✦ Scoped Out
This credit was scoped out	No gas connection in use
<b>3.1 Carpark Ventilation</b>	0%
Score Contribution	This credit contributes 10.0% towards the category score.
Criteria	If you have an enclosed carpark, is it: (a) fully naturally ventilated (no mechanical ventilation system) or (b) 40 car spaces or less with Carbon Monoxide monitoring to control the operation and speed of the ventilation fans?
Question	Criteria Achieved ?
Project	No
<b>3.2 Hot Water</b>	100%
Score Contribution	This credit contributes 5.0% towards the category score.
Criteria	What is the % reduction in annual hot water system energy use (gas and electricity) against the benchmark?
<b>3.7 Internal Lighting - Non-Residential</b>	100%
Score Contribution	This credit contributes 10.0% towards the category score.
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J6.2a of the NCC 2019 Vol 1?
Question	Criteria Achieved ?
Other building	Yes
<b>4.1 Combined Heat and Power (cogeneration / trigeneration)</b>	N/A ✦ Scoped Out
This credit was scoped out	No cogeneration or trigeneration system in use.

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<b>4.2 Renewable Energy Systems - Solar</b>		100%
Score Contribution	This credit contributes 5.0% towards the category score.	
Criteria	Does the solar power system provide 5% of the estimated energy consumption of the building class it supplies?	
Output	Solar Power - Energy Generation per year	
Other building	15,402 kWh	
Output	% of Building's Energy	
Other building	96 %	
<b>4.4 Renewable Energy Systems - Other</b>		N/A <input checked="" type="checkbox"/> Disabled
This credit is disabled	None	

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**Stormwater** Overall contribution 14% Minimum required 100%

Which stormwater modelling are you using?		MUSIC or other modelling software
<b>1.1 Stormwater Treatment</b>		100%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	Has best practice stormwater management been demonstrated?	
Question	Flow (ML/year)	
Project	0.0 % Reduction	
Question	Total Suspended Solids (kg/year)	
Project	89.3 % Reduction	
Question	Total Phosphorus (kg/year)	
Project	66.9 % Reduction	
Question	Total Nitrogen (kg/year)	
Project	47.7 % Reduction	

**IEQ** Overall contribution 11% Minimum required 50%

<b>1.4 Daylight Access - Non-Residential</b>		67%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	What % of the nominated floor area has at least 2% daylight factor?	
Question	Percentage Achieved?	
Other building	60 %	

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**Transport** Overall contribution 0%

<b>1.4 Bicycle Parking - Non-Residential</b>		0%
Score Contribution	This credit contributes 25.0% towards the category score.	
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?	
Question	Criteria Achieved ?	
Other building	No	
Question	Bicycle Spaces Provided ?	
Other building	-	
<b>1.5 Bicycle Parking - Non-Residential Visitor</b>		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?	
Question	Criteria Achieved ?	
Other building	No	
Question	Bicycle Spaces Provided ?	
Other building	-	
<b>1.6 End of Trip Facilities - Non-Residential</b>		N/A <input checked="" type="checkbox"/> Disabled
This credit is disabled	None	
<b>2.1 Electric Vehicle Infrastructure</b>		0%
Score Contribution	This credit contributes 25.0% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	No	
<b>2.2 Car Share Scheme</b>		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Has a formal car sharing scheme been integrated into the development?	
Question	Criteria Achieved ?	
Project	No	
<b>2.3 Motorbikes / Mopeds</b>		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?	
Question	Criteria Achieved ?	
Project	No	

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**Waste** Overall contribution 2%

<b>1.1 - Construction Waste - Building Re-Use</b>		100%
Score Contribution	This credit contributes 33.3% towards the category score.	
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?	
Question	Criteria Achieved ?	
Project	Yes	
<b>2.1 - Operational Waste - Food &amp; Garden Waste</b>		0%
Score Contribution	This credit contributes 33.3% towards the category score.	
Criteria	Are facilities provided for on-site management of food and garden waste?	
Question	Criteria Achieved ?	
Project	No	
<b>2.2 - Operational Waste - Convenience of Recycling</b>		0%
Score Contribution	This credit contributes 33.3% towards the category score.	
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?	
Question	Criteria Achieved ?	
Project	No	

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**Urban Ecology** Overall contribution 3%

**1.1 Communal Spaces**

100%

Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Is there at least the following amount of common space measured in square meters : * 1m <sup>2</sup> for each of the first 50 occupants * Additional 0.5m <sup>2</sup> for each occupant between 51 and 250 * Additional 0.25m <sup>2</sup> for each occupant above 251?
Question	Common space provided
Other building	251 m <sup>2</sup>
Output	Minimum Common Space Required
Other building	28 m <sup>2</sup>

**2.1 Vegetation**

50%

Score Contribution	This credit contributes 50.0% towards the category score.
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?
Question	Percentage Achieved ?
Project	15 %

**2.2 Green Roofs**

0%

Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Does the development incorporate a green roof?
Question	Criteria Achieved ?
Project	No

**2.3 Green Walls and Facades**

100%

Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Does the development incorporate a green wall or facade?
Question	Criteria Achieved ?
Project	Yes

**3.2 Food Production - Non-Residential**

0%

Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Is there at least 0.25m <sup>2</sup> of space per occupant dedicated to food production?
Question	Food Production Area
Other building	0.0 m <sup>2</sup>
Output	Min Food Production Area
Other building	8 m <sup>2</sup>

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**Innovation** Overall contribution 2%

<b>Innovation</b>		
Description	Air to Air Heat Recovery System	Variable demand control (CO2) outside air via air to air heat exchanger.
Points Targeted	Air to Air Heat Recovery System	2
<b>1.1 Innovation</b>		20%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

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