BESS Report

333 Bridge Rd, Richmond 3121 Richmond ·
Site area: 350 m^2 · **Building Floor Area:** 195 m^2 ·
Date of Assessment: 17 Nov 2015 ·
Applicant: admin@bess.net.au

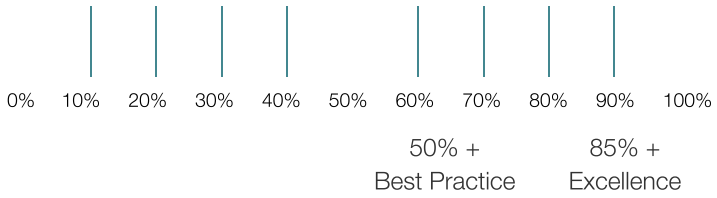
Project number

1155

Draft
http://bess.net.au/projects/1155

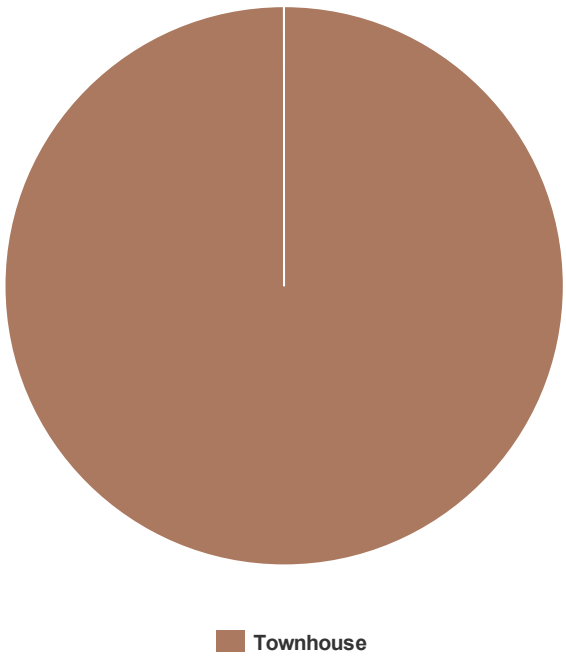
Your BESS score is

+ 64%



% of Total	Category	Score	Pass
7 %	Management	83 %	
14 %	Energy	61 %	✔
2 %	Water	40 %	-
14 %	Stormwater	100 %	✔
13 %	IEQ	75 %	✔
8 %	Transport	80 %	
2 %	Waste	50 %	
1 %	Urban Ecology	37 %	
0 %	Innovation	0 %	

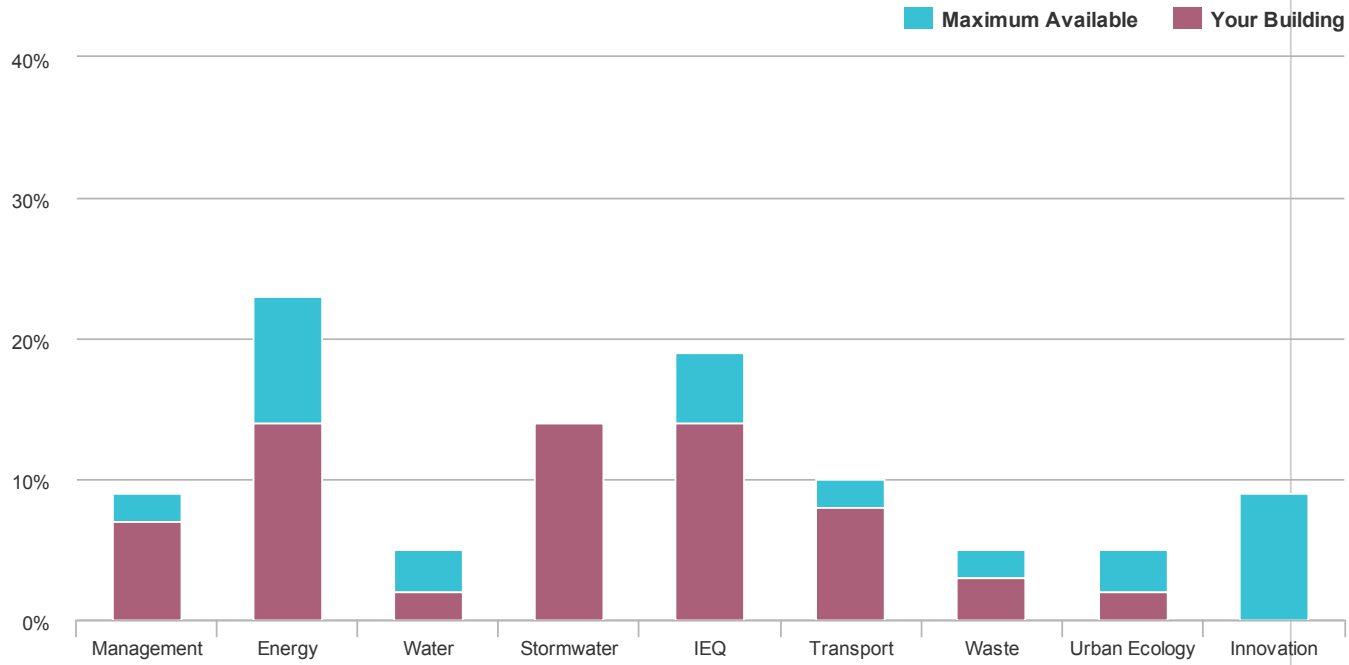
Building Composition



Dwellings

Type	Name	Quantity	Area
Townhouse	Townhouse Design 1	2	100 m^2
Townhouse	Townhouse Design 2	3	95 m^2

How did this Development Perform in each Environmental Category?



How does each section of the building perform?

Management

83% - contributing 7% to overall score

Credit	Disabled	Scoped out	Score
Management 1.1 Pre-application meeting			100 %
Management 2.2 Thermal performance modelling - multi-unit residential			100 %
Management 4.1 Building Users Guide			0 %

Management 1.1 Pre-application meeting

100%

Score Contribution	This credit contributes 50% towards this section's score.
Aim	To encourage the involvement of suitably qualified ESD professionals in the project team from the early design stage.

Questions

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?

Yes

Management 2.2 Thermal performance modelling - multi-unit residential

100%

Score Contribution	This credit contributes 33% towards this section's score.
Aim	To encourage and recognise developments that have used modelling to inform passive design at the early design stage

Questions

Have preliminary NatHERS ratings been undertaken for all thermally similar dwellings?

Yes

Management 4.1 Building Users Guide

0%

Score Contribution	This credit contributes 16% towards this section's score.
Aim	To encourage and recognise initiatives that will help building users to use the building efficiently

Questions

Will a building users guide be produced and issued to occupants?

No

Energy

61% - contributing 14% to overall score

Credit	Disabled	Scoped out	Score
Energy 1.2 Thermal performance rating - Residential			50 %
Energy 2.1 Greenhouse Gas Emissions			100 %
Energy 2.2 Peak Demand			0 %
Energy 2.3 Electricity Consumption			100 %
Energy 2.4 Gas Consumption			N/A
Energy 2.5 Wood Consumption			N/A
Energy 3.2 Domestic Hot Water			100 %
Energy 3.3 External Lighting			100 %
Energy 3.4 Clothes Drying			100 %
Energy 3.5 Internal Lighting - Residential Single Dwelling			100 %
Energy 4.2 Renewable Energy Systems - Solar			100 %
Energy 4.4 Renewable Energy Systems - Other			N/A

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

Project Energy Profile Questions

Is on-site Solar PV being installed?	Yes
Is other on-site renewable energy being installed?	No
Gas supply	No gas connection
NatHERS climate zone	21 Melbourne

Dwelling Energy Profiles

	Townhouse Design 1	Townhouse Design 2
Below the floor is	Ground or Carpark	Ground or Carpark
Above the ceiling is	Outside	Outside
Exposed sides	2	2
NatHERS Annual Energy Loads - Heat MJ/sqm	58.0	48.0
NatHERS Annual Energy Loads - Cool MJ/sqm	25.0	20.0
NatHERS star rating	7.0	7.5
Type of Heating System	Reverse cycle space	Reverse cycle space
Heating System Efficiency	4 Star	4 Star
Type of Cooling System	Refrigerative space	Refrigerative space
Cooling System Efficiency	5 Stars	5 Stars
Type of Hot Water System	Electric Heat Pump	Electric Heat Pump
Solar Hot Water System	No	No

Clothes Line	Private outdoor clothesline	Private outdoor clothesline
Clothes Dryer	Not specified	Not specified

Solar PV Systems

	Solar PV 1
Name	Solar PV 1
System Size (lesser of inverter and panel capacity) kW peak	12.0
Orientation (which way is the system facing?)	North
Inclination (angle to vertical) Angle (degrees)	40.0

Energy 1.2 Thermal performance rating - Residential 50%

Score Contribution	This credit contributes 33% towards this section's score.
Aim	Reduce reliance on mechanical systems to achieve thermal comfort in summer and winter - improving comfort, reducing greenhouse gas emissions, energy consumption, and maintenance costs.
Criteria	What is the average NatHERS rating?

Questions

NATHERS Rating ? Stars

-

Calculations

Average NATHERS Rating (Weighted) Stars

7.3

Energy 2.1 Greenhouse Gas Emissions 100%

Score Contribution	This credit contributes 11% towards this section's score.
Aim	Reduce the building's greenhouse gas emissions
Criteria	Are greenhouse gas emissions >10% below the benchmark

Questions

Criteria Achieved ?

-

Calculations

Reference Building with Reference Services (BCA only) kg CO2

10835.1

Proposed Building with Proposed Services (Actual Building) kg CO2

2323.7

% Reduction in GHG Emissions Percentage %

78 %

Energy 2.2 Peak Demand 0%

Score Contribution	This credit contributes 5% towards this section's score.
Aim	Reduce demand on electrical infrastructure during peak cooling periods
Criteria	Has the instantaneous (peak-hour) demand been reduced by >25%

Questions

Criteria Achieved ?

-

Calculations

Peak Thermal Cooling Load - Baseline kWh

26.5

Peak Thermal Cooling Load - Proposed kWh

25.1

Peak Thermal Cooling Load - % Reduction Percentage %

5 %

Energy 2.3 Electricity Consumption 100%

Score Contribution	This credit contributes 5% towards this section's score.
Aim	Reduce consumption of electricity
Criteria	Is the annual electricity consumption >10% below the benchmark

Questions

Criteria Achieved ?

-

Calculations

Heating, Cooling & Comfort Ventilation - Electricity - baseline kWh

8005.7

Heating, Cooling & Comfort Ventilation - Electricity - proposed kWh

1764.6

Improvement Percentage %

77 %

Energy 2.4 Gas Consumption

N/A

This credit was disabled: No gas supply in use.

Score Contribution	This credit contributes 11% towards this section's score.
Aim	Reduce consumption of electricity
Criteria	Is the annual gas consumption >10% below the benchmark?

Energy 2.5 Wood Consumption

N/A

This credit was scoped out: No wood heating system present

Aim	Reduce consumption of wood
Criteria	Is the annual wood consumption >10% below the benchmark?

Energy 3.2 Domestic Hot Water

100%

Score Contribution	This credit contributes 5% towards this section's score.
Criteria	Does the hot water system use >10% less energy (gas and electricity) than the reference case?

Questions

Criteria Achieved ?

-

Calculations

% Reduction in Energy Consumption Percentage %

99 %

Energy 3.3 External Lighting

100%

Score Contribution	This credit contributes 5% towards this section's score.

Questions

Is the external lighting controlled by a motion detector?

Yes

Energy 3.4 Clothes Drying 100%

Score Contribution	This credit contributes 5% towards this section's score.
Criteria	Does the combination of clothes lines and efficient driers reduce energy (gas+electricity) consumption by more than 10%?

Questions

Criteria Achieved ?

-

Calculations

Improvement Percentage %

80 %

Energy 3.5 Internal Lighting - Residential Single Dwelling 100%

Score Contribution	This credit contributes 5% towards this section's score.
Aim	Reduce energy consumption associated with internal lighting

Questions

Does the development achieve a maximum illumination power density of 4W/sqm or less?

Yes

Energy 4.2 Renewable Energy Systems - Solar 100%

Score Contribution	This credit contributes 5% towards this section's score.
Aim	To encourage the installation of on-site renewable energy generation
Criteria	Does the solar power system provide 5% of the building's energy consumption?

Questions

Criteria Achieved ?

-

Calculations

Solar Power - Energy Generation per year kWh

15636.6

% of Building's Energy Percentage %

4 %

Energy 4.4 Renewable Energy Systems - Other N/A

This credit was disabled: No other non-solar/wind renewable energy is in use.

Score Contribution	This credit contributes 5% towards this section's score.
Aim	To encourage the installation of on-site renewable energy generation
Criteria	Does another form of renewable energy (not solar PV) provide 5% of the building's energy consumption?

Water

40% - contributing 2% to overall score

Credit	Disabled	Scoped out	Score
Water 1.1 Water Efficient Fixtures			80 %
Water 2.1 Rainwater Collection & Reuse			0 %
Water 3.1 Water Efficient Landscaping			N/A

What approach do you want to use for Water?	Use the built in calculation tools
Do you have a reticulated third pipe?	Yes
Are you installing a swimming pool?	No
Are you installing a rainwater tank(s)?	Yes

Rainwater Tanks

	Tank 1
Name	Tank 1
Total roof area connected to tank Square Meters	220.0
Irrigation area connected to tank Square Meters	0.0
Tank volume Litres	20000.0
Is the connected irrigation area a low water use garden?	-

Water fixtures, fittings and connections

	Townhouse Design 1	Townhouse Design 2
Showerhead	3 Star WELS (>6.0 but <=7.5L/min)	3 Star WELS (>6.0 but <=7.5L/min)
Bath	No Bath	No Bath
Kitchen Taps	5 Star WELS	5 Star WELS
Bathroom Taps	5 Star WELS	5 Star WELS
Dishwashers	Not specified	Not specified
WC	4 Star WELS	4 Star WELS
Urinals	No Urinals	No Urinals
Washing Machine	Not specified	Not specified
Connected to which Tank	-	-
Is rainwater connected to toilets?	Yes	Yes
Is rainwater connected to the laundry (washing machine)?	No	No
Is rainwater connected to the hot water system?	No	No

Water 1.1 Water Efficient Fixtures 80%

Score Contribution	This credit contributes 50% towards this section's score.
Aim	Reduce water consumption through the use of efficient fixtures
Criteria	What is the reduction in total water use due to efficient fixtures and appliances?

Questions

Percentage Achieved ? Percentage %

%

Calculations

Reduction % Percentage %

44 %

Water 2.1 Rainwater Collection & Reuse 0%

Score Contribution	This credit contributes 50% towards this section's score.
Aim	Reduce potable water consumption through the use of rainwater where it is 'fit for purpose'

Criteria	What is the additional reduction in potable (mains) water use due to rainwater harvesting?

Questions

Percentage Achieved ? Percentage %

%

Calculations

Reduction % Percentage %

0 %

Water 3.1 Water Efficient Landscaping N/A

This credit was scoped out: There is no substantial landscaping in this project. Veggie Planter boxes only.

Stormwater 100% - contributing 14% to overall score

Credit	Disabled	Scoped out	Score
Stormwater 1.1 Stormwater Treatment			100 %

Which stormwater modelling are you using?	Melbourne Water STORM tool

Stormwater 1.1 Stormwater Treatment 100%

Score Contribution	This credit contributes 100% towards this section's score.
Aim	To achieve best practice stormwater quality objectives through reduction of pollutant load (suspended solids, nitrogen and phosphorus)
Criteria	Has best practice stormwater management been demonstrated?

Questions

STORM score achieved

101

Flow (ML/year) % Reduction

-

Total Suspended Solids (kg/year) % Reduction

-

Total Phosphorus (kg/year) % Reduction

-

Total Nitrogen (kg/year) % Reduction

-

Calculations

Min STORM Score

100

IEQ

75% - contributing 13% to overall score

Credit	Disabled	Scoped out	Score
IEQ 3.1 Thermal comfort - improved glazing			100 %
IEQ 3.2 Thermal comfort - external shading			100 %
IEQ 3.3 Thermal comfort - orientation			0 %

IEQ 3.1 Thermal comfort - improved glazing

100%

Score Contribution	This credit contributes 50% towards this section's score.
Aim	To provide comfortable indoor spaces and reduce energy needed for heating and cooling

Questions

Is double glazing (or better) used to all living areas and bedrooms?

Yes

IEQ 3.2 Thermal comfort - external shading

100%

Score Contribution	This credit contributes 25% towards this section's score.
Aim	To provide comfortable indoor spaces and reduce energy needed for heating and cooling

Questions

Is appropriate external shading provided to east, west and north facing windows?

Yes

IEQ 3.3 Thermal comfort - orientation 0%

Score Contribution	This credit contributes 25% towards this section's score.
Aim	To provide comfortable indoor spaces and reduce energy needed for heating and cooling

Questions

Are at least 50% of living areas orientated to the north?

No

Transport 80% - contributing 8% to overall score

Credit	Disabled	Scoped out	Score
Transport 1.1 Bicycle parking - residential			100 %
Transport 1.2 Bicycle parking - residential			100 %
Transport 2.1 Electric Vehicle Infrastructure			0 %

Transport 1.1 Bicycle parking - residential 100%

Score Contribution	This credit contributes 40% towards this section's score.
Aim	To encourage and recognise initiatives that facilitate cycling
Criteria	Is there at least one secure bicycle space per dwelling?

Questions

Bicycle Spaces Provided ?

5

Calculations

Min Bicycle Spaces Required

5

Transport 1.2 Bicycle parking - residential 100%

Score Contribution	This credit contributes 40% towards this section's score.
Aim	To encourage and recognise initiatives that facilitate cycling

Criteria	Is there at least one visitor bicycle space per 4 dwellings?

Questions

Visitor Bicycle Spaces Provided ?

2

Calculations

Min Visitor Bicycle Spaces Required

1

Transport 2.1 Electric Vehicle Infrastructure 0%

Score Contribution	This credit contributes 20% towards this section's score.
Aim	To facilitate the expansion of infrastructure to support electric vehicle charging

Questions

Are facilities are provided for the charging of electric vehicles?

No

Waste 50% - contributing 2% to overall score

Credit	Disabled	Scoped out	Score
Waste 1.0 Construction Waste Management			50 %
Waste 1.1 Building Re-use			0 %
Waste 2.1 Food & Garden Waste			100 %

Waste 1.0 Construction Waste Management 50%

Score Contribution	This credit contributes 50% towards this section's score.
Aim	To maximise the re-use and recycling of materials
Criteria	Is there a commitment to re-use and recycle construction & demolition waste?

Questions

Percentage of C&D waste that will be recycled? Percentage %

70 %

Waste 1.1 Building Re-use 0%

Score Contribution	This credit contributes 25% towards this section's score.
Aim	To recognise developments that re-use materials on-site

Questions

If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?

No

Waste 2.1 Food & Garden Waste 100%

Score Contribution	This credit contributes 25% towards this section's score.
Aim	To minimise organic waste going to landfill

Questions

Are facilities provided for on-site management of food and garden waste?

Yes

Urban Ecology 37% - contributing 1% to overall score

Credit	Disabled	Scoped out	Score
Urban Ecology 2.1 Vegetation			25 %
Urban Ecology 2.2 Green Roof			0 %
Urban Ecology 2.3 Green Wall or Facade			0 %
Urban Ecology 2.4 Private open space - ecology			100 %
Urban Ecology 3.1 Food Production - residential			100 %

Urban Ecology 2.1 Vegetation 25%

Score Contribution	This credit contributes 50% towards this section's score.
Aim	To encourage and recognise the use of vegetation and landscaping within and around developments
Criteria	How much of the site is covered with vegetation (% ground area)?

Questions

Percentage Achieved ? Percentage %

10 %

Urban Ecology 2.2 Green Roof 0%

Score Contribution	This credit contributes 12% towards this section's score.
Aim	To encourage the appropriate use of green roofs, walls and facades to mitigate the impact of the urban heat island effect.

Questions

Does the development incorporate a green roof?

No

Urban Ecology 2.3 Green Wall or Facade 0%

Score Contribution	This credit contributes 12% towards this section's score.
Aim	To encourage the appropriate use of green roofs, walls and facades to mitigate the impact of the urban heat island effect.

Questions

Does the development incorporate a green wall or facade?

No

Urban Ecology 2.4 Private open space - ecology 100%

Score Contribution	This credit contributes 12% towards this section's score.
Aim	Encourage plants to be grown on balconies and courtyards

Questions

Is there a tap and floor waste (drainage) on every balcony / in every courtyard?

Yes

Urban Ecology 3.1 Food Production - residential 100%

Score Contribution	This credit contributes 12% towards this section's score.

Aim	To encourage the production of fresh food on-site
Criteria	Is there at least 0.25 sqm per resident dedicated to food production?

Questions

Food Production Area Square Meters

25.0

Calculations

Min Food Production Area Square Meters

2

Innovation

0% - contributing 0% to overall score

Credit	Disabled	Scoped out	Score
Innovation 1.1 Innovation			N/A

Innovation 1.1 Innovation

N/A

This credit was disabled: Please enter at least one innovation.

Score Contribution	This credit contributes 100% towards this section's score.
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?

Items to be marked on floorplans

Documents and evidence