



7 November 2016

**EQUITY DEVELOPMENT MANAGEMENT
SUITE 201, LEVEL 2
22-24 ATCHISON STREET
ST LEONARDS NSW 2065**

Attn: Mr. Philip Riddell

Dear Philip,

**RE: APPLICATION NUMBER: MP_10_0044
BUILDING D
SIR MOSES MONTEFIORE JEWISH HOME (SMMJH)**

With reference to the energy efficiency targets identified in the Project Approval, we hereby confirm that, via the implementation of a number of water saving initiatives, Building D at SMMJH can achieve a saving in water consumption of at least 25% against the existing buildings.

- Installation of water efficient tapware;
- Rainwater harvesting for reuse in toilet flushing, landscape irrigation and wash down;
- Capture and reuse of fire test water;
- The introduction of routine maintenance protocols to minimise water loss through system failures (i.e. leaking cisterns & taps etc.).

Attached are the supporting calculations quantifying the above.

Yours faithfully,
DP CONSULTING GROUP PTY LTD

ANTHONY FARAM
Director

Links to - Building and climate data:

Building input, areas and operation

10-year rainfall data

Links to - Water demand:

Fittings

Whitegoods

Heat Rejection

Washdown

Landscape Irrigation

Links to - Reclaimed water supply:

Reclaimed water use

Rainwater collection

Greywater collection

Blackwater collection

Stormwater and off-site reclaimed water supply

Links to - Results:

Checklist

Demand summary

Results for Performance Pathway (18A) only

Results for Domestic hot water

Results for Sewerage

Instructions: Enter information into light blue cells

For details on what information is required and how this information is used to calculate the reduction in potable water consumption against the Standard Practice Benchmark, please refer to the Green Star - Potable Water Calculator Guide, available from the GBCA website.

0. GENERAL

BUILDING OCCUPANCY, AREAS AND OPERATION

Space type description	Area (m²)	Peak days of operation (remaining days assumed off-peak)	Occupancy profile	Maximum design occupancy used in water use		Percentage of building users who occupy the space continually for periods greater than one hour.
				Proposed Building design occupancy (m2/person)	Default design occupancy (Not applicable for residential areas)	
level 2	2400	1 day a week	NCC Table 2a (Class 3 or class 0c, good care)	0	Please select	5%
Level 3	1200	7 days a week	NCC Table 2e (Class 9a work)	50	Please select	90%
Level 4	1600	7 days a week	NCC Table 2a (Class 3 or class 0c, good care)	50	Please select	90%
Level 5	1600	7 days a week	NCC Table 2a (Class 3 or class 0c, good care)	50	Please select	90%
Level 6	1400	7 days a week	NCC Table 2a (Class 3 or class 0c, good care)	50	Please select	90%
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
		Please Select	Please Select		Please select	
Non occupied areas		n/a	n/a			
TOTAL AREA	8200					

BUILDING CHECKLIST

Please provide responses to the following questions. Detailed inputs will be requested further on in the calculator.

WATER USES - ALL QUESTIONS MUST BE ANSWERED

1. Sanitation

Are fixtures and fittings provided for building occupant sanitation?

Yes

Does the project provide for sports activities?

No

Have showers been installed for post/pre activity use?

No

2. White Goods

Does the project include any dishwashers or washing machines?

Yes

3. Heat Rejection

Does the project utilise water based heat rejection (building cooling)?

No

Does the project have cooling towers?

No

Does the project contain any other water cooled systems that are not conventional cooling towers?

No

4. Wash Down

Does the project include wash down areas?

Yes

5. Landscape Irrigation

Are there any landscaped areas within the project?

Yes

Are any irrigation systems included in the project?

Yes

6. Swimming Pools

Are there any swimming pools within the project?

No

7. Fire Protection System

Does the project include a fire protection system?

Yes

8. Process Cooling

Does the project include any water based process cooling?

No

WATER REUSE - ALL QUESTIONS MUST BE ANSWERED

9. Water Reclamation

Does any water collection, reclamation and/or reuse occur on the project site?

Yes

Does the project include rainwater capture and reuse systems?

Yes

Does the project include greywater capture, treatment and reuse systems?

No

Does the project include blackwater capture, treatment and reuse systems?

No

Does the project include other stormwater reuse or an off-site supply of non-potable water?

No

1. SANITATION FIXTURE EFFICENCY

WATER DEMAND FROM FIXTURES AND FITTINGS: (Annual water demand from fixtures and fittings is calculated using assumed usage rates based on the space types and occupancies entered above. Please see pages 10-13 of the details.)

	Water efficiency		Resulting water efficiency used in calculator (l/min, except for toilets, L/flush)	Percentage of each type	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
	Manual entry from manufacturer's data sheet (l/min, or L/flush for toilets)	WELS Star Rating selection				
Toilets						
Water Closets		6 Star	2.5	30%		
Basins		6 Star	2.5	30%		
Showers		6 Star	2.5	30%		
Sinks		6 Star	2.5	10%		
			Total	100%	225.4	360.7
Urinals	Are urinals installed?	Yes	Would urinals normally be installed in the building type?	Yes	(Note: if "No" is selected, the project team should provide justification within the short report as to why the standard practice building does not have urinals.)	

Wall Hung		6 Star	1	100%
<enter description here>		Select star rating		
<enter description here>		Select star rating		
<enter description here>		Select star rating		

Urinals on auto timer	Enter average L/flush	0		
	Enter number of urinals on autotimer	0		
	Percentage of total number of Urinals	0		
	Total	100%	69.4	138.7

(The Standard Practice Benchmark is based on 3 Star WELS rated urinals)

Indoor taps				
Hose Taps		6 Star	4.5	100%
<enter description>		Select star rating		
<enter description>		Select star rating		
<enter description>		Select star rating		
Total			100%	117.0

(The Standard Practice Benchmark is based on 4 Star WELS rated taps)

Showers - Occupants				
Shower demand by occupants (reference)			100.0%	
Shower demand by occupants (current)			100.0%	
Showers		3 Star	9	75%
<enter description>		Select star rating		
<enter description>		Select star rating		
<enter description>		Select star rating		
Total			75%	1093.2

For residential buildings
Enter 100% for both "reference" and "current" shower demand
For other building types
Use the reference and proposed building bicycle accommodation percentage from the Sustainable Transport Calculator, or percentages determined under 17.B.4 "Active Transport Facilities" criterion to determine the number of building occupants that are likely to shower each day.

(The Standard Practice Benchmark is based on 3 Star WELS rated showers)

Indicate the number of people expected to participate in sporting activities each day. (Use an average based on weekly figures if required)

0	Please ensure the total equals 100% Indicate the number of days/year that the sports facilities are in use	0
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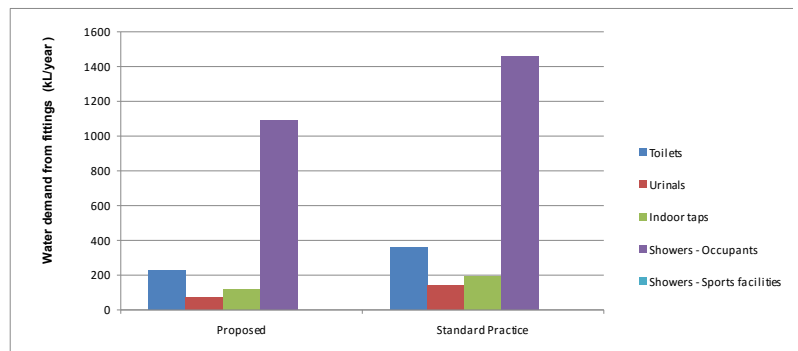
Showers - Sports facilities				
<enter description>		Select star rating		
<enter description>		Select star rating		
<enter description>		Select star rating		
<enter description>		Select star rating		
Total			0%	0.0

(The Standard Practice Benchmark is based on 3 Star WELS rated showers)

Please ensure the total equals 100%

RESULTS: WATER DEMAND FROM FITTINGS

	Proposed Building water demand (kL/year)	Standard Practice Building water demand (kL/year)
Toilets	225.4	360.7
Urinals	69.4	138.7
Indoor taps	117.0	195.1
Showers - Occupants	1093.2	1457.6
Showers - Sports facilities	0.0	0.0
TOTAL	1505.0	2152.0



2. WHITE GOODS

Water Demand from Washing Machines

The project team is to provide documentary evidence in accordance with the water calculator guide and technical manual to substantiate the number of

Clothes washing machines	Water efficiency		Machine capacity (kg)	Resulting water efficiency used in calculator (L/kg)	Number of each type	Number of cycles per year (leave blank if unknown)	Proportion of water per cycle that is sourced from DHW (%)
	Manual entry from manufacturer's data	WELS Star Rating selection					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
Total					0		

Water Demand from Dishwashers

Dishwashers	Water efficiency		Machine capacity (number of place settings)	Resulting water efficiency used in calculator (L/cycle)	Number of each type	Number of cycles per year (leave blank if unknown)	Proportion of water per cycle that is sourced from DHW (%)
	Manual entry from manufacturer's data	WELS Star Rating selection					
Dishwashers		6 Star	8	5.8	8		0%
Lab Dishwashers		Select star rating					0%
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
<enter description>		Select star rating					
Total					8		

3. HEAT REJECTION

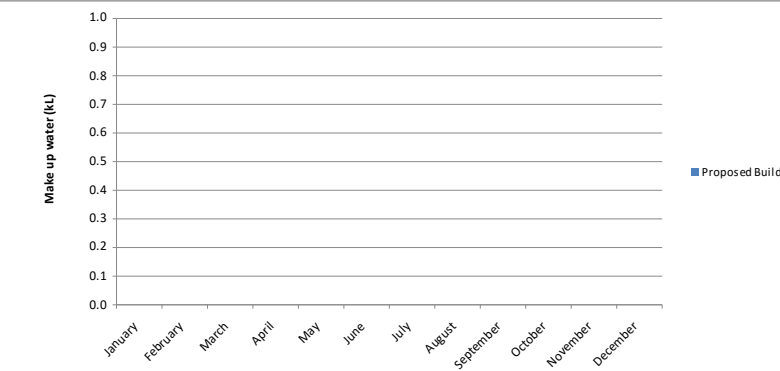
THE PROJECT TEAM HAS INDICATED THAT THERE ARE NO WATER BASED HEAT REJECTION SYSTEMS INCLUDED TO THE NEXT SECTION.

Water Demand from Cooling Towers

THE PROJECT TEAM HAS INDICATED THAT THERE ARE NO WATER BASED HEAT REJECTION SYSTEMS INCLUDED IN THE PROJECT

Water demand from heat rejection systems that are not conventional cooling towers

THE PROJECT TEAM HAS INDICATED THAT THERE ARE NO WATER BASED HEAT REJECTION SYSTEMS OR CONVENTIONAL COOLING TOWERS INCLUDED IN THE PROJECT, PLEASE PROVIDE A COMMENT.



4. WASHDOWN

Washdown	Hose Flowrate (L/min)	Number of Hoses	Average daily use (minutes)	Proposed daily consumption (kL)	Standard practice daily consumption (kL)
Loading Dock	10	2	5	0.1	0.1
<enter description>				0.0	0.0
<enter description>				0.0	0.0
<enter description>				0.0	0.0
<enter description>				0.0	0.0
<enter description>				0.0	0.0
<enter description>				0.0	0.0
<enter description>				0.0	0.0
<enter description>				0.0	0.0
<enter description>				0.0	0.0
Total				0	0.1

5. LANDSCAPE IRRIGATION

(The irrigation requirement for the site is calculated for each month of the year, for each landscaped 'zone' in the site (a zone being a landscaped area that has the same soil type, irrigation system and as far as possible, types of plants). Please see pages 17-22 of the Green Star- Calculator Guide for further details.)

Climate data	Monthly rainfall (mm)	Monthly evapotranspiration (point potential) (mm)
January	107.7	54
February	114.2	48
March	92.5	61
April	116.9	73
May	161.3	91
June	74.1	67
July	85.1	75
August	97.2	86
September	59.6	77
October	82.9	83
November	85.2	71
December	51.1	72

Data on each landscaped zone				Irrigation system water application efficiency	
Zone name and description	Area of zone (m²)	Percentage of zone undercover (%)	Weighted average crop coefficient in zone	Default water application efficiency for common irrigation systems	User determined application efficiency
Grass	1055	0%	0.6	Sprinklers - Night (75%)	
Planters	1190	0%	0.35	Drip - Under mulch (85%)	
				Please select	
				Please select	
				Please select	
				Please select	
				Please select	
				Please select	
				Please select	
				Please select	

Standard practice landscape irrigation assumptions: (Same as Proposed Building) (Same as Proposed Building) (0.6) (75%)

RESULTS: WATER DEMAND FROM IRRIGATION

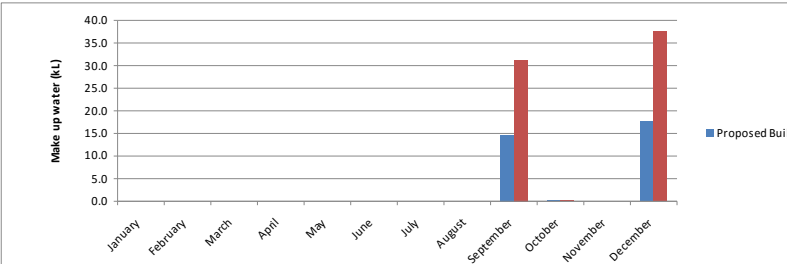
Annual irrigation requirement from each zone

Zone name and description	Annual irrigation requirement for each zone (kL/year)	
	Proposed Building	Standard Practice Building
Grass	32.4	32.4
Planters	0.0	36.6
0	0.0	0.0
0	0.0	0.0
0	0.0	0.0
0	0.0	0.0
0	0.0	0.0
0	0.0	0.0
0	0.0	0.0
0	0.0	0.0
0	0.0	0.0
TOTAL for all zones (kL/year)	32.4	69.0

Note: The irrigation requirement for a particular zone will only be computed once every field related to that zone has been completed in the table above.

Total irrigation requirement for all zones by month

	Irrigation requirement for all zones per month (kL/month)	
	Proposed Building	Standard Practice Building
January	0.0	0.0
February	0.0	0.0
March	0.0	0.0
April	0.0	0.0
May	0.0	0.0
June	0.0	0.0
July	0.0	0.0
August	0.0	0.0
September	14.7	31.3
October	0.1	0.2
November	0.0	0.0
December	17.6	37.5
Total make up water (kL/year)	32.4	69.0



6. SWIMMING POOLS

THE PROJECT TEAM HAS INDICATED THAT THERE ARE NO SWIMMING POOLS IN THE PROJECT, PLEASE PRO

Enter the volume of the swimming pool (m³)
Enter the surface area of the swimming pool (m²)
Enter the annual minimum pool hall exhaust air volume based on the requirements of AS1668.2 (m³)
Enter the annual proposed design pool hall exhaust air volume (m³)

7. FIRE PROTECTION SYSTEMS

Is the building required under part E of the National	Yes
Does the building's sprinkler system discharge water during	Yes
Is greater than 80% of discharged water captured for reuse?	Yes
Testing frequency (enter number of tests per year)	1
Volume discharged per test (L)	6000
Proportion of water captured per test (%)	65%
Fire protection system water point achieved	Yes

8. PROCESS COOLINGTHE PROJECT TEAM HAS INDICATED THAT THERE IS NO PROCESS COOLING IN THE PROJECT, PLEASE PRO

9. RECLAIMED WATER

Note: All systems entered into this calculator must comply with local EPA requirements.

Reclaimed Water Use

How are the water demands from uses assessed in Potable Water credit met?

Water use (assessed in Potable Water, Credit 18)	Percentage of fittings/systems connected to the following water sources				
	Rainwater	Greywater	Blackwater	Stormwater recycling or other off-site reclaimed water	Mains water only (this column must be completed - please enter a figure of between 0% and 100% for each water use)
Toilets	100%				
Urinals	100%				
Indoor Taps					100%
Showers - occupants					100%
Showers - sports					0%
Laundries					100%
Dishwashers					100%
Heat rejection	0%				
Wash down	100%				
Landscape irrigation	100%				
Fire system water					100%
Swimming pools					0%
Process cooling					0%

Note: Where fittings or systems are supplied with water from more than one source, it is assumed that they are first supplied with water from any greywater and blackwater systems, followed by rainwater, stormwater and off-site reclaimed water systems.

#DIV/0!

#DIV/0!

#DIV/0!

Total monthly water demands from water uses not assessed in the Potable Water credit (kL) whose demands are completely or partially met by reclaimed water:

Note: The demand for reclaimed water from water uses assessed under other credits will be met before any water uses assessed under the Potable Water Credit.

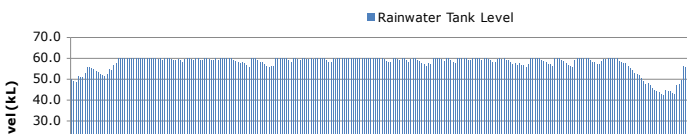
	Monthly water demand (kL/month)			Note: This table only needs to be filled in if reclaimed water is used to meet the demand of these end uses. If reclaimed water is not used for these end uses, leave these cells blank. When reclaimed water is used, enter the total demand for each month regardless of whether it is fully or partially met by the reclaimed water supply. In the table below, the percentage of the demand met by reclaimed water/connected to the reclaimed water supply is entered.
	<Enter description of any other uses of rainwater or re-used water>	<Enter description of any other uses of rainwater or re-used water>	<Enter description of any other uses of rainwater or re-used water>	
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

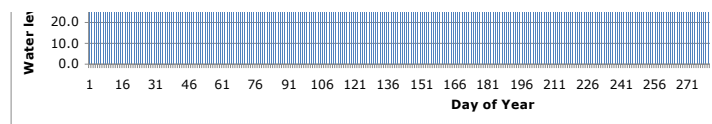
How are the water demands from the Non-Potable water uses met?

Water use	Rainwater	Greywater	Blackwater	Stormwater recycling or other off-site reclaimed water	Mains water only (this column must be completed - please enter a figure of between 0% and 100% for each water use)
<Enter description of any other uses of rainwater or re-used water>					
<Enter description of any other uses of rainwater or re-used water>					
<Enter description of any other uses of rainwater or re-used water>					

Rainwater Collection

Rainfall collection area (m2)	1000
Run-off co-efficient	Flat roof with gravel0.8
Storage capacity (kL)	60
Rainwater tank reliability %	65%





Grey Water Collection THE PROJECT TEAM HAS INDICATED THAT NO GREYWATER COLLECTION IS INCLUDED IN THE PROJECT, PLEASE PROCEED TO THE NEXT SECTION.

Black Water Collection THE PROJECT TEAM HAS INDICATED THAT NO BLACKWATER COLLECTION IS INCLUDED IN THE PROJECT, PLEASE PROCEED TO THE NEXT SECTION.

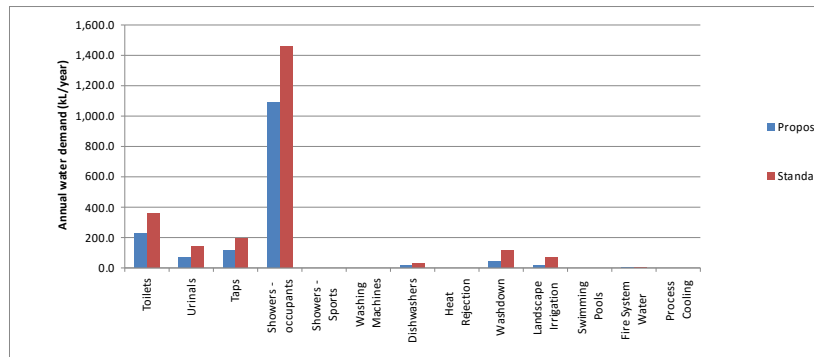
Stormwater and Off-site reclaimed water supply THE PROJECT TEAM HAS INDICATED THAT NO STORMWATER OR OFFSITE COLLECTION IS INCLUDED IN THE PROJECT, PLEASE P

9. SUMMARY OF WATER DEMAND

Summary of demand from each Potable water use

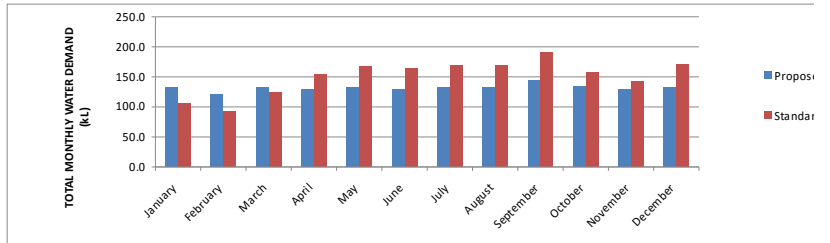
Annual water demand from each Potable water use (kL/year)

	Proposed Building	Standard Practice Building
Toilets	225.4	360.7
Urinals	69.4	138.7
Taps	117.0	195.1
Showers - occupants	1,093.2	1,457.6
Showers - Sports	0.0	0.0
Washing Machines	0.0	0.0
Dishwashers	17.1	27.6
Heat Rejection	0.0	-488.5
Washdown	43.8	112.8
Landscape Irrigation	14.8	69.0
Swimming Pools	0.0	0.0
Fire System Water	2.1	1.2
Process Cooling	0.0	0.0
TOTAL	1,582.7	1,874.1



Summary of demand from all Potable water uses per month

	Monthly water demand from all Potable water uses (kL/month)	
	Proposed Building	Standard Practice Building
January	133.2	105.0
February	120.3	92.9
March	133.2	123.5
April	128.9	153.6
May	133.2	168.1
June	128.9	163.3
July	133.2	168.7
August	133.2	168.6
September	143.6	191.4
October	133.3	157.6
November	128.9	141.8
December	133.2	170.5
TOTAL	1,582.7	1,874.1



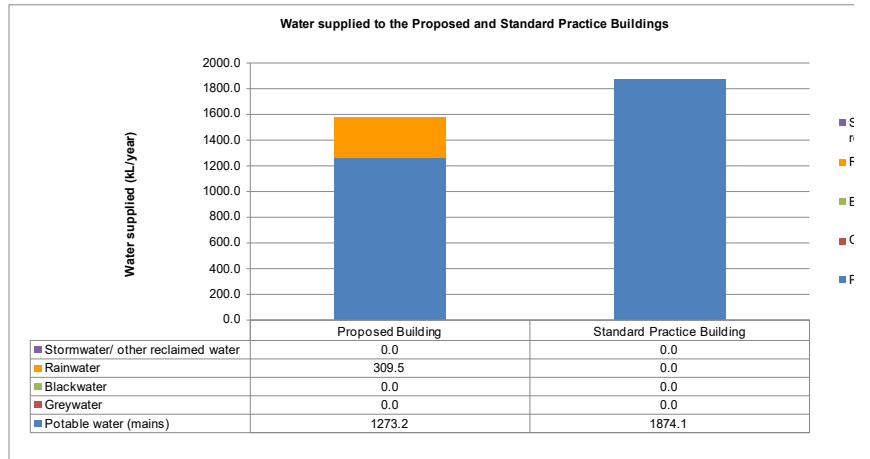
10. RESULTS

	Proposed Building						Standard Practice Building
	Total water demand	Rainwater used to meet demand	Greywater used to meet demand	Blackwater used to meet demand	Stormwater and off-site reclaimed water used	Potable water demand	Potable water demand
January	133	25	0	0	0	108	105
February	120	23	0	0	0	98	93
March	133	25	0	0	0	108	123
April	129	24	0	0	0	105	154
May	133	25	0	0	0	108	168
June	129	24	0	0	0	105	163
July	133	25	0	0	0	108	169
August	133	25	0	0	0	108	169
September	144	39	0	0	0	105	191
October	133	25	0	0	0	108	158
November	129	24	0	0	0	105	142
December	133	25	0	0	0	108	171
TOTAL	1,583	310	0	0	0	1,273	1,805

Percentage reduction in Potable Water Consumption compared to the Standard Practice Building	29%
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Points Achieved - General	3
Points Achieved - Fire system test water	1
Points Achieved - Process cooling	N/A

Points Allocation		
Percentage reduction compared to standard practice benchmark	kL/year	Points awarded
0%	1805	0
5%	1715	1
15%	1534	2
25%	1354	3
35%	1173	4
45%	993	6
55%	812	7
65%	632	8
75%	451	9
85%	271	10
95%	90	11



Outputs from this calculator required for Ene-Conditional Requirement and Credit 15: Greenhouse Gas Emissions.

The annual domestic hot water usage figures determined in this calculator must be used in the energy modelling required for Ene-Conditional Requirement and Credit 15: Greenhouse Gas Emissions to estimate the domestic hot water energy re and Standard Practice Buildings. For more details see the Green Star - Greenhouse Gas Emissions Calculator Guide, available www.gbca.org.au.

The estimates of annual hot water consumption usage of the Proposed Building are based on the water efficiency of the fittings entered into this calculator. The estimates for the Standard Practice Building are based on the Standard Practice Building's fittings - for further details see the Green Star - Potable Water Calculator Guide, available www.gbca.org.au.

	Proposed Building	Standard Practice Building
Annual Domestic Hot Water Usage (kL/year)	605.10	826.31

NOTE: THESE FIGURES CAN ONLY BE USED IF the 'Building input, areas and operation' and 'Water consumption due to fittings' sections of THIS CALCULATOR are COMPLETED.

11. SEWAGE

SEWERAGE REDUCTION DUE TO WATER RECYCLING

Percentage reduction in discharge to sewer compared to	12.3%
Innovation Point Achieved	0

An innovation point may be claimed for a 90% of greater reduction in flow to sewer

RAINFALL DATA

The project team is to paste daily average rainfall data for their location into the following table. The project team may supply their own data (see Potable Water calculator guide) or may copy and paste the provided data for preselected locations as shown to the right).

Location	
Date	10-Year Average (mm)
01-Jan	0.0
02-Jan	0.8
03-Jan	5.5
04-Jan	0.9
05-Jan	1.4
06-Jan	4.1
07-Jan	5.2
08-Jan	2.0
09-Jan	1.0
10-Jan	0.5
11-Jan	0.0
12-Jan	1.0
13-Jan	0.0
14-Jan	1.0
15-Jan	0.7
16-Jan	3.1
17-Jan	4.7
18-Jan	1.2
19-Jan	4.7
20-Jan	2.3
21-Jan	4.6
22-Jan	9.0
23-Jan	4.7
24-Jan	4.8
25-Jan	7.9
26-Jan	3.1
27-Jan	2.6
28-Jan	2.3
29-Jan	5.5
30-Jan	9.4
31-Jan	13.7
01-Feb	7.5
02-Feb	7.6
03-Feb	2.6
04-Feb	6.5
05-Feb	13.3
06-Feb	6.6
07-Feb	2.1
08-Feb	1.3
09-Feb	7.5
10-Feb	0.9
11-Feb	3.1
12-Feb	9.9
13-Feb	6.3
14-Feb	1.5
15-Feb	0.8
16-Feb	1.7
17-Feb	2.4
18-Feb	0.7
19-Feb	0.6
20-Feb	3.6
21-Feb	6.2
22-Feb	2.4
23-Feb	1.5
24-Feb	0.9
25-Feb	11.0
26-Feb	3.6
27-Feb	0.5
28-Feb	1.6
01-Mar	5.3
02-Mar	1.9
03-Mar	1.4
04-Mar	1.0
05-Mar	1.8
06-Mar	3.1
07-Mar	0.9
08-Mar	7.6
09-Mar	7.9
10-Mar	6.7
11-Mar	8.0
12-Mar	5.3
13-Mar	2.2
14-Mar	0.0
15-Mar	1.1
16-Mar	1.2
17-Mar	0.9
18-Mar	2.3
19-Mar	0.0
20-Mar	0.0
21-Mar	0.6
22-Mar	8.8
23-Mar	11.0
24-Mar	8.4
25-Mar	0.6
26-Mar	0.0
27-Mar	1.2
28-Mar	0.0
29-Mar	0.0
30-Mar	0.9
31-Mar	2.4
01-Apr	1.8
02-Apr	7.0
03-Apr	2.7
04-Apr	2.0
05-Apr	3.8
06-Apr	3.3
07-Apr	2.2
08-Apr	0.5
09-Apr	0.0
10-Apr	15.5
11-Apr	19.4
12-Apr	1.0
13-Apr	1.0
14-Apr	3.5
15-Apr	2.1
16-Apr	1.2
17-Apr	1.5
18-Apr	11.4
19-Apr	1.2
20-Apr	2.7
21-Apr	4.7

22-Apr	3.9
23-Apr	7.3
24-Apr	3.2
25-Apr	0.0
26-Apr	0.0
27-Apr	1.5
28-Apr	8.0
29-Apr	1.0
30-Apr	3.5
01-May	4.4
02-May	6.1
03-May	4.5
04-May	2.5
05-May	5.9
06-May	17.9
07-May	5.1
08-May	3.7
09-May	5.9
10-May	1.9
11-May	8.6
12-May	3.6
13-May	3.9
14-May	7.2
15-May	9.0
16-May	6.8
17-May	8.7
18-May	6.2
19-May	15.5
20-May	4.4
21-May	1.1
22-May	0.7
23-May	0.8
24-May	1.6
25-May	4.2
26-May	7.1
27-May	1.5
28-May	0.0