

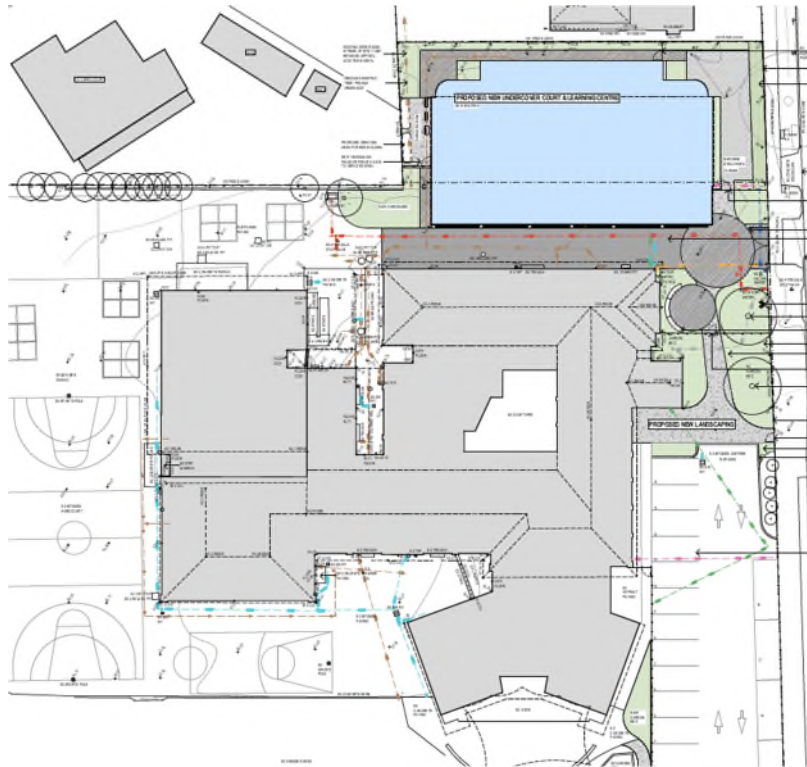


# ADVERTISED PLAN SUSTAINABLE MANAGEMENT PLAN

## Stage 1 Holy Spirit Parish School Proposed Learning Spaces 83 Minerva Road Manifold Heights VIC 3218

Consultant: Karim Ghobrial  
Client: Minx Architecture  
7A/91 Moreland St  
Footscray VIC 3011  
Date: December 2024

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Issue	Comments	Revision
Original, Dec 2024	For TP approval	0



## Contents

SMP Summary and Commitments by Owner/Builder.....	3
BESS Verdict.....	5
1.0 Project Scope .....	6
2.0 Design Process .....	7
3 Management, Application and Commissioning.....	8
Implementation and Maintenance Schedule .....	10
4 Water.....	11
4.1 Storm Rating Report Verdict .....	12
4.2 Objectives .....	13
4.3 Application and Implementation.....	13
4.4 Maintenance (Policy 22.18).....	14
4.5 Commissioning .....	15
4.6 Site Management Plan .....	16
5.0 Energy.....	17
6 Indoor Environment Quality .....	19
6.1 VOC .....	20
7 Transport.....	24
8 Waste.....	25
9 Urban Ecology .....	26
Contribution to cooling and improving local habitat.....	27
Appendix A - BESS Report .....	29
Appendix B – WSUD Layout and Storm Rating.....	30
Appendix C Wall-Glazing Calculations .....	32
Appendix D – Ventilation Requirements.....	33
Appendix E – Daylight Modelling and Report.....	34

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### SMP Summary and Commitments by Owner/Builder

<p><b>Energy Efficiency</b></p>	<ul style="list-style-type: none"> <li>• Energy efficient airconditioning to be within one point of the highest available Star efficiency or at least 85% Energy Efficient Ratios (EER).</li> <li>• Water heating units to be within one point of the highest available Star efficiency or at least 85% energy efficient.</li> <li>• Lighting to be at least 20% more efficient than NCC Section J energy efficiency minimum requirements.</li> <li>• Building fabric to be 10% better than NCC Section J energy efficiency minimum requirements.</li> <li>• Motion detectors to be used for common areas, toilets and rooms for lighting.</li> <li>• Opting for an all-electric development.</li> <li>• PV solar power panel to be supplied and installed. refer to roof layout.</li> </ul>
<p><b>Material Fabric</b></p>	<ul style="list-style-type: none"> <li>• Insulation to be in accordance to minimum requirements: R3.5 for ceilings.</li> <li>• Walls insulation R2.5.</li> <li>• Glazing to have VLT (visible light transmittance) of minimum 75% for better daylight.</li> <li>• Glazing to be single-glazed LowE (Viridian ComfortPlus Clear) type. U Value of 4.5 or less and SHGC of 0.55-0.65.</li> <li>• Light colour roof and pavement to reduce the Urban Heat Island Impact.</li> </ul>
<p><b>Water Efficiency and STORM Management</b></p>	<ul style="list-style-type: none"> <li>• Toilets to be minimum 4 Star WELS rating.</li> <li>• Taps to be minimum 6 Star WELS rating.</li> <li>• Roofs will be treated by a 10,000L water tank.</li> <li>• Water tanks to be used for both irrigation and toilets flushing.</li> </ul>
<p><b>Construction &amp; Building Waste Management</b></p>	<ul style="list-style-type: none"> <li>• Waste storage size to be minimum 4m2 for dedicated spaces within the building for general and recycling waste bins for occupants.</li> <li>• Commitment: Timber used to be certified by a forest certification scheme (FSC or PEFC/AFS).</li> <li>• Provide bins for materials and general recycling.</li> <li>• Commitment to recycle at least 80% of construction waste.</li> <li>• Commitment to have minimum 30% replacement of cement with SCMs such as flyash (averaged over the project). <u>This is subject to engineer's sign off.</u></li> </ul>

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<b>Indoor Environment Quality</b>	<ul style="list-style-type: none"><li>• Commitment to use low VOC materials on paints and adhesives.</li><li>• Commitment to meet the maximum total indoor pollutant emission limits for carpets.</li><li>• Windows and doors to be openable to allow for natural ventilation. Louvers will be operated by CO2 sensors.</li><li>• Ceiling fans for all Learning rooms and the collaborative space.</li></ul>
<b>Transport</b>	<ul style="list-style-type: none"><li>• 30-off new bike racks to be provided.</li><li>• Students will have bag stores on site.</li></ul>
<b>Urban Ecology</b>	<ul style="list-style-type: none"><li>• Exposed concrete pavement, specify high SRI paints and materials (SRI&gt;50) to help mitigate the urban heat island effect. This must be reflected on plans.</li><li>• Light roof colour and paving. Roof solar absorptance to be 0.45 or less.</li></ul>

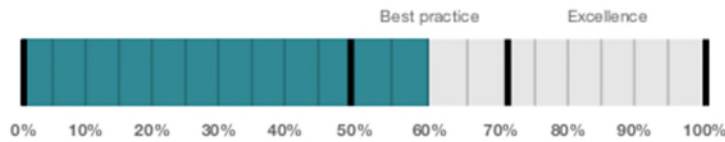
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## BESS Verdict

### Your BESS Score



61%

### Project details

Name	Stage 1. Holy Spirit Parish School
Address	83 Minerva Road Manifold Heights Victoria 3218
Project ID	3184EF03-R2
BESS Version	BESS-9
Site type	Non-residential development
Account	info@efficientenergychoices.com.au
Application no.	
Site area	8,600 m <sup>2</sup>
Building floor area	1,038 m <sup>2</sup>
Date	18 December 2024
Software version	2.0.1-B.574



### Performance by category

● This project ● Maximum available

Category	Weight	Score	Pass
Management	5%	42%	●
Integrated Water Management	23%	81%	✓
Operational Energy	28%	77%	✓
Indoor Environment Quality	17%	66%	✓
Transport	9%	25%	●
Waste & Resource Recovery	6%	66%	●
Urban Ecology	6%	50%	●
Innovation	9%	0%	●

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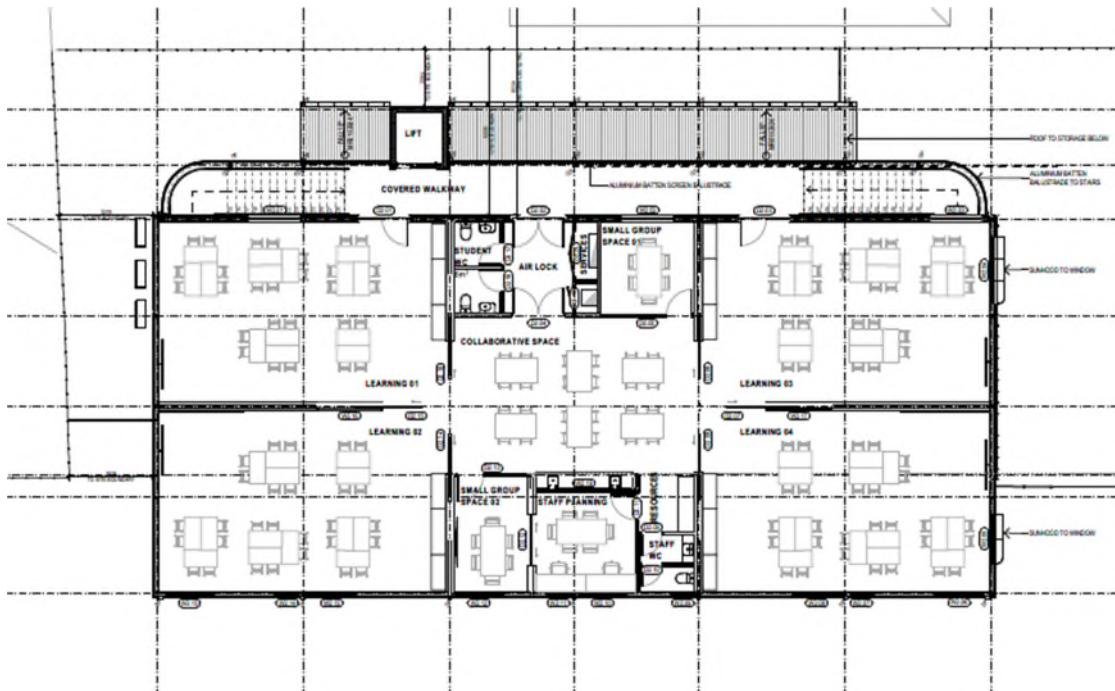
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## 1.0 Project Scope

The proposed project is Stage 1 proposed Learning Centre at Holy Spirit Parish School at Manifold Heights VIC 3218. This is a proposed new building development comprising of new learning spaces, amenities and a sports court. This proposed building is amongst other existing buildings.

Refer to drawings by Minx Architecture, Drawings: 2402-TP.00 to 2402-TP40, Dated December 2024, Rev B. This report addresses Council sustainability Clause and for Stormwater Management Clause in conjunction with civil and drainage engineer.



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## 2.0 Design Process

Environmental Sustainable Design (ESD) initiatives were carried out using the following:

- BESS stands for (Built Environment Sustainability Scorecard) Tools for Environmental Performance Strategy. Average rating was obtained for heating, cooling and star rating. Refer to attached energy report rating. The BESS design tool was used to achieve the following report. Refer to Appendix A and BESS report;
- NCC Section J energy efficiency chapter and requirement


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### 3 Management, Application and Commissioning

Item	Requirement	Comments
Management Pre-Application Meeting	ESD professional been engaged to provide sustainability advice from schematic design to construction. AND the ESD professional been involved in a pre-application meeting with Council.	ESD consultant has not been engaged from the start.
Thermal Performance Modelling - non-Residential	Provide a preliminary facade assessment in accordance with NCC2 Section J1.5.	Included. Has been carried out by ESD consultant.
Metering – non-Residential	Provide a preliminary Section J energy report or NABERS or Green Star. Provide utility meters for all individual commercial tenants.	Section J energy report has been carried out by the ESD consultant. Scoped out. Not relevant to this project. Only one building owner.
	<p style="color: red; text-align: center;"><b>This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright</b></p>	
Metering - Common Areas	Have all major common area services been separately sub-metered.	Not achieved.
Building Users Guide	Produce a building users guide and issue to occupants.	To be provided by builder at occupancy.
Commissioning	Services to be commissioned.	By builder and appropriate trades and service engineers.
ESD inspection	Inspect the site during construction and at least two weeks prior to completion to ensure the ESD items have been supplied and installed on site.	By ESD consultant the author of this report.





## Additional requirements

For town planning submission, the following are required:

- Submit SMP report.
- Ensure the SMP requirements are clearly noted or depict on the drawings for endorsement by Council Planners.
- Commitment for a thorough commissioning program to be undertaken to ensure that systems are effectively and efficiently operating.
- Ensure that the ESD recommendations in this report will be incorporated in the project and services documentation for building permit stage.

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## Implementation and Maintenance Schedule

Actions	Responsibility	Completion Date
Prelim section J assessment	ESD Consultant, Architect	During documentation
Materials, recycling, sustainable items	Architect, Builder	During documentation
Insulation & sealing	Architect, Builder	during construction
Air-conditioning systems	Services Engineer, Builder	prior to building permit. Maintenance schedule by School
Hot water heating	Services Engineer, Builder	As above
Lighting	Architect, Builder	As above
Motion / time switch controls	Services Engineer, Builder	As above
Bike storage	Architect, Builder	during construction or on site already
Metering	Services Engineer, Builder	prior to building permit
Energy efficient lifts	Services Engineer, Builder	As above. Maintenance schedule by school.
Rainwater tank	Services Engineer, Builder	As above
Water efficient toilets	Architect, Builder	As above
Water efficient taps	Architect, Builder	As above
Water efficient showers	Architect, Builder	As above
Water efficient appliances	Architect, Builder	As above
Fire system test water capture	Builder, Services Engineer	As above
Concrete	Builder	during construction
Plasterboard	Builder	during construction
Timber	Builder	during construction
Material Re-use	Architect, Builder	during construction
Topsoil	Builder	during construction
Construction Management Plan	Builder	during construction
Low VOC paints, sealants, adhesives	Architect, Builder	during construction
Building Users Guide	Owner's Corporation, ESD Consultant, Building Services	Upon CoF
Building tuning	Owner's Corporation, Building Services	Yearly Maintenance schedule by school
Commissioning	Builder and appropriate trades and service engineers.	Prior to occupancy
SMP inspection	ESD consultant	Prior to occupancy

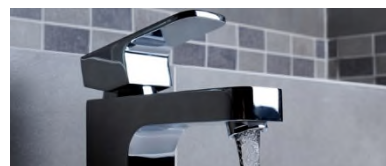
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#### 4 Water

Item	Requirement	Comments
Water tank	To be installed to satisfy the Stormwater requirement. Other items may be required like a raingarden or a media filtration pit subject to STORM verdict.	Building's roofs to be treated by a 10,000L RWT. Refer to WSUD layout and Storm Rating Report. Collected water to be issued for both irrigation and toilets flushing.
Water Efficient Landscaping	Provide water efficient landscaping.	Yes. To be depicted on landscaped drawings. Responsibility by landscape architect and builder.
Building Systems Water Use Reduction	Where applicable reduce potable water consumption by >80% in the buildings air-conditioning chillers and when testing fire safety systems.	Building will not be sprinkled.
Water fixtures, fittings and connections.	Refer to summary at start of report.	All fittings to be of high-level WELS efficiency.



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#### 4.1 Storm Rating Report Verdict



### STORM Rating Report

TransactionID: 0  
Municipality: GREATER GEELONG  
Rainfall Station: GREATER GEELONG  
Address: 81 Minerva Road

Herne Hill  
VIC

Assessor:  
Development Type: Commercial/Retail  
Allotment Site (m2): 1,236.00  
STORM Rating %: 101

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Treated - Roof Catchment	519.00	Rainwater Tank	10,000.00	25	143.40	68.00
Untreated - Concrete	87.00	None	0.00	0	0.00	0.00
Untreated - Asphalt	134.00	None	0.00	0	0.00	0.00

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**Also refer to WSUD site layout in the Appendices.**

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## 4.2 Objectives

Prevent stormwater pollution from construction sites. Ensure construction site is regularly cleaned from rubbish and any debris to prevent them from entering storm system.

- Ensure also to mitigate detrimental effect of development on downstream waterways by the application of best practice stormwater management by regular cleaning of site and blocking off certain areas.
- Minimise peak stormwater flows and stormwater pollutants to improve health of water bodies.
- To reintegrate urban water into the landscape and provide attractive spaces for community use.

## 4.3 Application and Implementation

Treatment of stormwater measures to improve quality and reduce flow of water discharged to waterways.

- Water will be collected from roofs into a media filtration system, Atlan type.
- Install appropriate storage bins and waste enclosures.
- Builder to have a site management plans and measures during construction to prevent litter, sediments and pollution entering waterways.
  - Regular cleaning of site
  - Appropriate waste storage and regular pick up of waste
  - If necessary, use litter traps where necessary.

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#### 4.4 Maintenance (Policy 22.18)

Once rainwater tank installed and associated collection areas are to be regularly inspected. The following measures are to be carried out through inspections every 3 to 6 monthly basis:

**Gutters:** to be inspected for integrity and debris buildup. Debris to be cleared up and gutters made good as required.

**Roof:** to be inspected for debris build up. Debris should be cleared. Tree/plant growth resulting in increased debris.

**Tank:** to be inspected for integrity. Repair/replace as required.

**Cleanness of site:** to be inspected and cleared of debris on a daily basis.

**First flush device:** inspect and clean if required.

**Inlet/overflow screen:** inspect and clean if required.

**Sludge accumulation:** every 2 to 3 years and desludge if required.

Removal of sludge and organic sediments that accumulate in the base of a rainwater tank may be necessary if buildup is excessive and as such as suitable outlet should be provided. This sludge layer and biofilms that develop on the walls of a tank, may be important in the natural purification processes occurring in the tank; therefore, removing a sludge layer should only occur when buildup impedes the tank operation.

**Pump system:** as required/specified by pump manufacturer.

Following acceptance of design, when project moves to construction, defects periods and ultimately transfer of the asset to owners. the inspection forms, asset transfer checklists and maintenance schedules can be used to help ensure WSUD elements are built as designed are maintained and are in good operating condition prior to asset transfer to owner.

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### 4.5 Commissioning

For town planning submission, the following are recommended:

- Submit stormwater report.
- Ensure that the water tank and permeable areas are clearly noted on the drawings for endorsement by council planners.
- Ensure that this report will be incorporated in the project and services documentation for building permit stage.

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### Rainwater Tank Maintenance Recommendations

Things to look for and how to fix them.

<b>Leaf litter / debris in gutters</b> Regularly clear your gutters. Make sure you cover the tank inlet if you're rinsing down the gutters to avoid debris entering the tank.	<b>Pump not working</b> Check operating instructions for your pump. Check that pumps are kept clear of surface water (flooding), vegetation, and have adequate ventilation. Pumps should be serviced every few years to prolong the pump life.
<b>Blocked downpipe</b> If you see water spilling from the edge of the gutters check that the downpipe is not blocked, removing any debris.	<b>Mains backup or pump not working</b> Have you heard the pump operating? If the mains backup switching device fails many people do not notice for a long time. Consider a manual system if the switching device is problematic and you don't mind operating it manually.
<b>First flush diverter clogging</b> To clean out, unscrew the cap at the base of the diverter and remove the filter. Wash the filter with clean water and the flow restrictor inside the cap.	<b>Overflow</b> Check that the overflow is not blocked and that there is a clear path for water to safely spill from the tank through the overflow pipe when full. Check that a clean mesh screen is safely in place to prevent mosquitoes entering the tank.
<b>Debris on the mesh cover over inlets / outlets</b> The fine stainless steel mesh is similar to fly screen mesh. It should be cleaned regularly to ensure it does not become blocked with leaves and other material.	<b>Sediment / debris build-up in tank (more than 20mm thick)</b> Over time a small amount of fine sediment will collect in the bottom of your tank and this is harmless and natural. It should not be disturbed until it is approx 20 mm thick which may take many years. To clean your tank out simply empty your tank and wash out with a high-pressure washer or hose.
<b>Dirt and debris around the tank base or side.</b> Keep leaf build-up, sticks, pot plants and other items off the lid of your tank. Use a hose to remove dust and dirt from the outside of the rainwater tank and ensure there is no debris on the base, bottom lip and walls of your tank.	<b>Base area</b> Tanks must be fully supported by a flat and level base. Check for any movement, cracks or damage to the slab or pavers. If damage is observed, empty the tank to remove the weight and have the fault corrected to prevent damage to the tank. There is no warranty from suppliers for damage to a rainwater tank if the base has failed.
<b>Smelly water or mosquitos</b> Rainwater tanks can smell if there is debris in the gutters. Check the gutters and leaf strainers are clean. Mosquitos or wrigglers can make their way into your tank if they are small enough to pass through the inlet strainer. A very small amount of chlorine (approx 4 parts per million) can be put in the tank to kill off mosquitos or the bacteria causing odours. The chlorine will disinfect the water and then evaporate. Chlorine tablets from a pool supplier can be used (but check the recommended dose based on your tank capacity).	<b>Monitoring the water level</b> A range of devices are available to monitor water level. Some simple float systems can be used effectively.

Acknowledgement: Information from PJT Green Plumbing's 'Maintenance Guide for Your Rainwater Tank' was used to develop this fact sheet.



#### 4.6 Site Management Plan

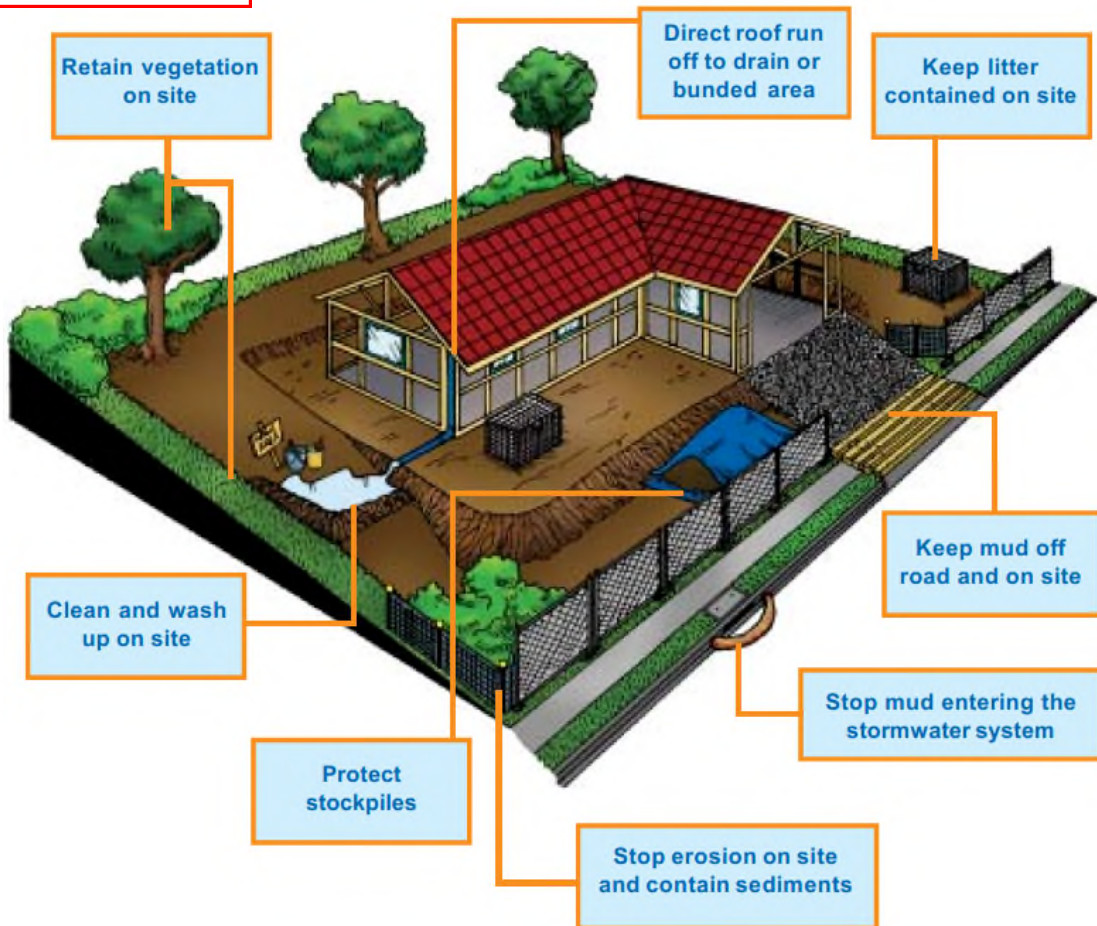
Builder commitments to:

- Stop erosion and keep sediment on site. Use a gravel sausage or sediment log.
- Contain stockpiles on site.
- Keep mud off road and on site.
- Keep litter contained on site.
- Clean up and wash on site.

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Check Council requirements and plan before you start work on site



Above is taken from Melbourne Water “Keeping Our Stormwater Clean”

<https://www.melbournwater.com.au>

<https://www.clearwatervic.com.au/resource-library/guidelines-and-strategy/keeping-our-stormwater-clean-a-builders-guide.php>





## 5.0 Energy

Item	Requirement	Comments
Energy supply	Gas and/or electricity	Development to be gas free type.
Electric appliances and services.	To be of high energy efficiency and performance.	<p>All appliances and services to be of high-level efficiency:</p> <ul style="list-style-type: none"> <li>• Energy efficient airconditioning to be within one point of the highest available Star efficiency or at least 85% Energy Efficient Ratios (EER). <u>There are no ducted airconditioning systems.</u></li> <li>• Heat pump or solar boosted heating for the hot water unit. To be one star of best available or at least 85% better than most efficient capacity. TBC with services engineer in conjunction with the builder.</li> <li>• LED energy efficiency lighting.</li> <li>• Refer to summary at start of report for efficiency requirements.</li> </ul>
Thermal energy efficiency	To meet and exceed Section J energy efficiency benchmark.	Will be achieved by high level of insulation and high performance glazing for conditioned spaces. The building fabric to be at least 10% better than Section J energy efficiency. Refer to wall-glazing calculation in the Appendices.
Internal Lighting	Maximum illumination power density (W/m <sup>2</sup> ) to be at least 90% of the relevant building class at least 10% more efficient than required by Table J6.2a of the NCC 2019 Vol 1 (Class 2-9).	To have energy efficient LED lighting type in rooms, amenities and open spaces. To be 10% more energy efficient than Table 6.2a. This should be easily achieved by LED lighting. To be designed by services engineer and installed by builder.
Unoccupied spaces	Use Motion and daylight sensors.	To be installed in common areas, circulation space, rooms and amenities to minimise unnecessary lighting consumption.

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To be designed by services engineer  
and installed by builder.

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## 6 Indoor Environment Quality

This section is about improving thermal comfort, lighting, ventilation, noise and minimisation of indoor VOCs.

Item	Requirement	Comments
Daylight Access – Non residential	Recommended minimum 80% to achieve a daylight factor greater than 2%	Complies. Refer to daylight modelling and report in the Appendices. The daylight modelling is based on VLT of minimum 75% using single-glazed LowE Clear (Viridian ComfortPlus Clear) type.
Effective Natural Ventilation	To be effectively naturally ventilated. This may be achieved by either openable glazing for ventilation or cross-flow natural ventilation.	This is critical for healthy occupancy and thermal comfort. To also avoid condensation and mould. There are ample of openable windows, doors and louvers. The louvers will be operating upon CO <sup>2</sup> sensors. Additional high-level automatic louvres will be provided.
More on ventilation	To increase in outdoor air for regular use areas compared to the minimum required by AS 1668.2:2012.	Mechanical ventilation not necessarily required. Sufficient natural ventilation will be available.
CO2 monitors	Ensure the ventilation systems are designed to achieve, to monitor and to maintain the CO <sub>2</sub> .	CO <sup>2</sup> sensors will be used.
External shading	Provide external shading.	Glazing will have external eaves or overhangs on the north. East facing glazing will have sunhoods as per drawings.
Thermal comfort	Install ceiling fans in spaces.	Ceiling fans for all Learning rooms and the collaborative space. Windows will be providing cross flow ventilation.
VOC	Minimise VOC materials on paints and adhesives.	To be carried out by builder.

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Wood products	Use either E0 or E1 grade engineered wood products (e.g. MDF, plywood, engineered wood flooring).	To be carried out by builder.
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## 6.1 VOC

It is required to use low Volatile Organic Compounds (VOC) for:

- Internal finishes and internal painted surfaces. Not to exceed 50g/L
- Ceramic tile adhesive. Not to exceed 65g/L
- Structural glazing adhesive. Not to exceed 100g/L
- Adhesives and sealants. Not to exceed 50g/L
- All paints, sealants and adhesives, carpet and engineered wood products will meet current GECA, Global Green Tag GreenRate, carpet institute Australia.
- Environmental Classification Scheme Level 2, Green Star or WELL standards for TVOC in paints, adhesives and sealants (by volume) and carpets (by area) and for Formaldehyde in engineered wood (by area).



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Refer to table below for requirements and also attached appendix.

Product Type/Sub Category	Max TVOC (g/L)
<b>Paints, varnishes and protective coatings</b>	
walls and ceilings - interior gloss	75
walls and ceilings - interior semi gloss	16
walls and ceilings - interior low sheen	16
walls and ceilings - interior flat washable	16
ceilings - interior flat	14
trim - gloss, semi gloss, satin, varnishes and woodstains	75
timber and wood binding primers	30
latex primer for galvanized iron and zincalume	60
interior latex undercoat	65
interior sealer	65
one and two pack performance coatings for floors	140
others: any solvent-based coatings	200
<b>Adhesives and sealants</b>	
indoor carpet adhesive	50
carpet pad adhesive	50
wood flooring and laminate adhesive	100
rubber flooring adhesive	60
sub-floor adhesive	50
ceramic tile adhesive	65
cove base adhesive	50
dry wall and panel adhesive	50
multipurpose construction adhesive	70
structural glazing adhesive	100
architectural sealants	250

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- paints, sealants and adhesives.  
Paints to be low VOC (<16g/L) with 50% of paints to be ultra-low VOC (.5g/L)
- carpets
- engineered wood

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The above products to meet current GECA, Global GreenTag GreenRate, Carpet Institute Australia Environmental Classification Scheme Level 2, Green Star or WELL standards for TVOC in paints, adhesives and sealants (by volume) and carpets (by area) and for Formaldehyde in engineered wood (by area).



Product Category	Max TVOC content in grams per litre (g/L) of ready to use product.
General purpose adhesives and sealants	50
Interior wall and ceiling paint, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

The product complies with the Total VOC (TVOC) limits specified in the Table below.

**Carpet Test Standards and TVOC Emissions Limits**

Test protocol	Limit
ASTM D5116 - Total VOC limit	0.5mg/m <sup>2</sup> per hour
ASTM D5116 - 4-PC (4-Phenylcyclohexene)	0.05mg/m <sup>2</sup> per hour
ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m <sup>2</sup> per hour
ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m <sup>2</sup> per hour

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Test Protocol	Emission Limit/ Unit of Measurement
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1 mg/ L
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5 mg/L
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1 mg/ L
AS/NZS 4357.4 - Laminated Veneer Lumber (LVL)	≤1 mg/ L
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	≤1 mg/ L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	≤1 mg/ L
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	≤1 mg/ L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1 mg/m <sup>2</sup> hr*
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1 mg/m <sup>2</sup> hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m <sup>2</sup> hr (at 3 days)
ASTM D6007	≤0.12mg/m <sup>3</sup> **
ASTM E1333	≤0.12mg/m <sup>3</sup> ***
EN 717-1 (also known as DIN EN 717-1)	≤0.12mg/m <sup>3</sup>
EN 717-2 (also known as DIN EN 717-2)	≤3.5mg/m <sup>2</sup> hr

\*mg/m<sup>2</sup>hr may also be represented as mg/m<sup>2</sup>/hr.

Source: Green Star Manual [www.gbca.com.au](http://www.gbca.com.au)

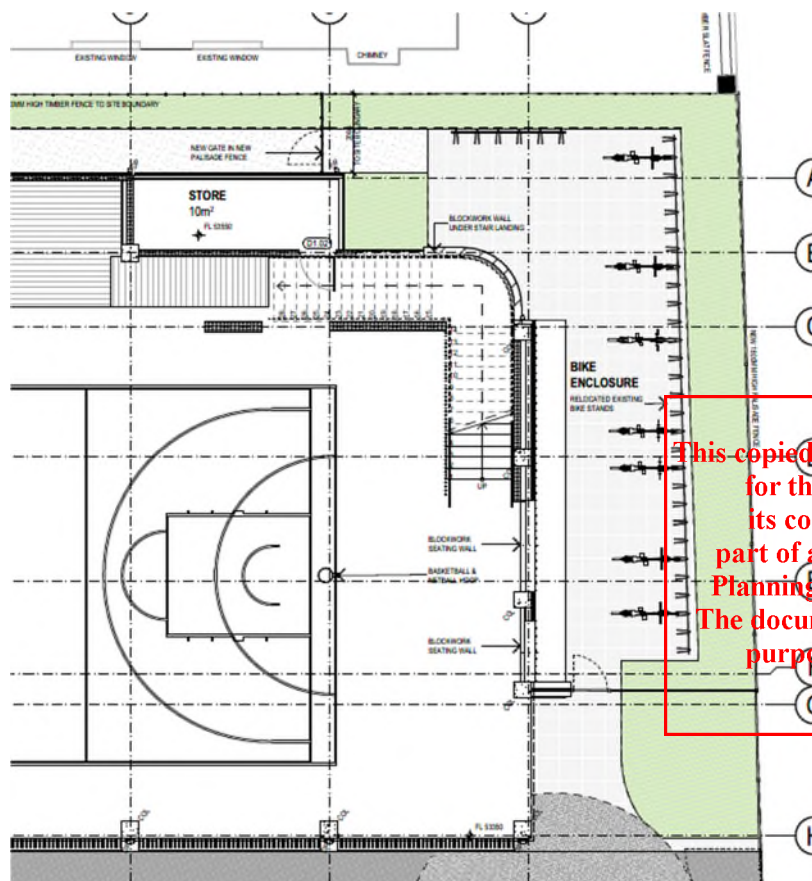
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## 7 Transport

Item	Requirement	Comments
Bicycle Parking – non Residential	Secure and undercover bicycle spaces.	30-off bike racks will be provided as depicted on drawings.
End of Trip Facilities - Non-Residential	Showers and lockers	No showers for students. But they will have bag stores.



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## 8 Waste

Item	Requirement	Comments
Operational Waste - Food & Garden Waste	Provide facilities for on-site management of food and garden waste.	The school has existing compost bins and a worm farm already.
Operational Waste - Convenience of Recycling	Provide recycling facilities for occupants as facilities for general waste.	To have storages and collection of waste, mixed recycling, glass, organics and e-waste. Each of these waste streams to have its designated space.  Recycling and landfill waste is collected within the building before being moved to the school's main collection point/bins area. Other waste streams are collected in other locations within the school grounds outside of our project's area.

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## 9 Urban Ecology

Item	Requirement	Comments
Communal Spaces	Communal space to be provided.	Plenty of recreation and play spaces for the students on site.
Vegetation	How much of the site is covered with vegetation, expressed as a percentage of the total site area.	Refer to drawings by architect. Most of the site is permeable green surface areas.  They plan on retaining existing mature trees and planting new native plants in the project area.
Food Production - Residential	Provide space per resident for dedicated food production.	Some food production at the school site as part of the school program. This is a usual practice for primary schools.
Urban heat	Mitigate urban heat island effect.	Exposed concrete pavement specify high SRI paints and materials (SRI>50) to help mitigate the urban heat island effect. This must be reflected on plans by architect.
Colour	Light colours for roof and paving.	Light roof colour and paving. Roof solar absorptance to be 0.45 or less.

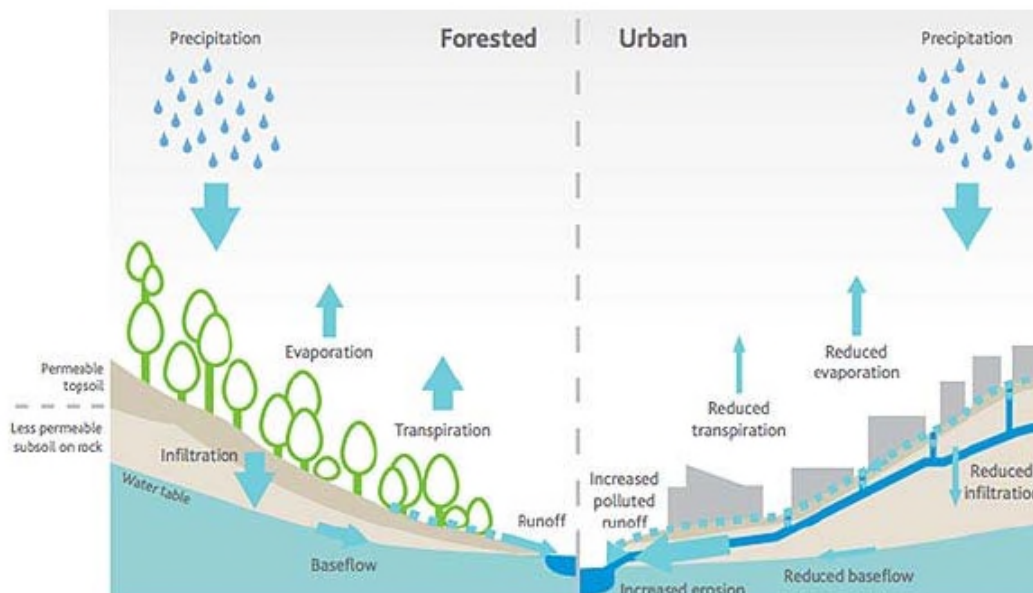
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## Contribution to cooling and improving local habitat

Urban development dramatically changes the local habitat. It will reduce the process of rainwater evaporation and its plants absorption or soaking it into the ground.



This happens when clearing land of vegetation and increasing impervious surfaces, which will cause the following:

- Put pressure and pollute the local stormwater in a very short time after a rain.
- Unnatural flows to the local waterways or rivers for a few hours after it rains.
- Making beaches unsuitable for swimming for 1-2 days after heavy rain
- Eroding stream banks and degrading streams
- Increase in pollutant runoff

Implementing rainwater tanks and/or raingardens will reduce these negative impacts to the local habitat.

Advantages of rainwater tanks are:

- Minimise water usage when used in the toilet, laundry or garden
- Reduce strain on the stormwater drainage system
- Retain water close to source
- Reduce site run-off and flood peaks

Advantages of raingardens are:

- Reduce pollutant runoff to the creeks and bay
- Increase green space to assist with cooling.

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*Disclaimer*

*The above are guidelines and recommendations are to assist the above project to meet the required ESD requirements. It is the responsibility of the owner/builder to follow the above guidelines to meet these requirements. It is not the responsibility of Efficient Energy Choices.*

Kind Regards,  
Karim Ghobrial  
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**Green Star Accredited Professional by Green Building Council Australia**

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## Appendix A - BESS Report

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# BESS Report

Built Environment Sustainability Scorecard

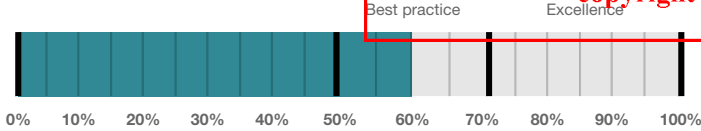


This BESS report outlines the sustainable design commitments of the proposed development at 83 Minerva Road Manifold Heights Victoria 3218. The BESS report and accompanying documents and evidence for this project are available for public inspection for the purpose of enabling a Sustainable Design Assessment or Sustainability Management Plan at Greater Geelong 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 outcomes for the life span of the project, which the performance outcomes can be achieved.

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## Your BESS Score



**61%**

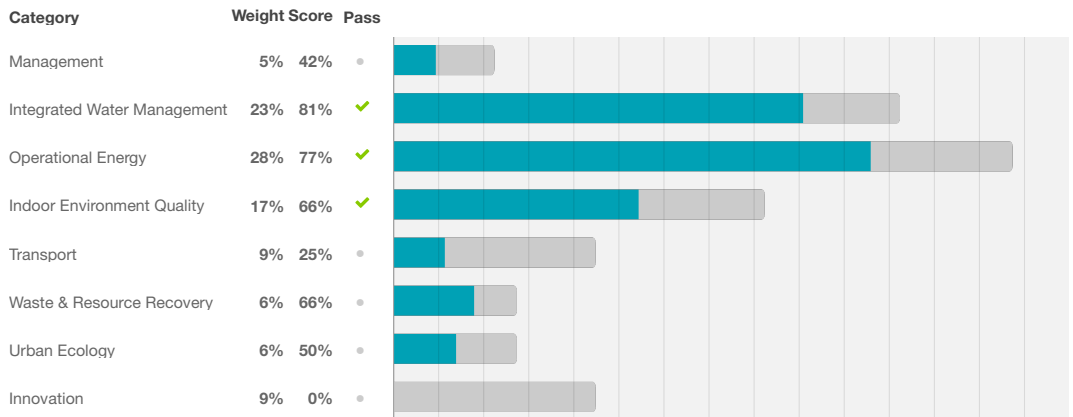
## Project details

Name	Stage 1. Holy Spirit Parish School
Address	83 Minerva Road Manifold Heights Victoria 3218
Project ID	3184EF03-R3
BESS Version	BESS-9
Site type	Non-residential development
Account	info@efficientenergychoices.com.au
Application no.	
Site area	8,600 m <sup>2</sup>
Building floor area	1,038 m <sup>2</sup>
Date	18 December 2024
Software version	2.0.1-B.574

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## Performance by category



## Buildings

Name	Height	Footprint	% of total footprint
Learning Centre	2	519 m <sup>2</sup>	100%

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## Dwellings & Non Res Spaces

### Non-Res Spaces

Name	Quantity	Area	Building	By BSA Area
Other building				
Learning Centre and sports	1	1,038 m <sup>2</sup>	Learning Centre	100%
<b>Total</b>	<b>1</b>	<b>1,038 m<sup>2</sup></b>	<b>100%</b>	

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## Supporting Evidence

### Shown on Floor Plans

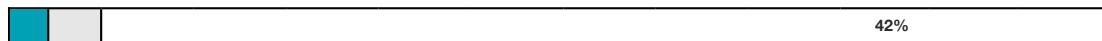
Credit	Requirement	Response	Status
Integrated Water Management 2.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
Integrated Water Management 3.1	Annotation: Water efficient garden details		-
Operational Energy 4.2	Location and size of solar photovoltaic system		-
Transport 1.4	Location of non-residential bicycle parking spaces		-
Waste & Resource Recovery 2.1	Location of food and garden waste facilities		-
Waste & Resource Recovery 2.2	Location of recycling facilities		-
Urban Ecology 1.1	Location and size of communal spaces		-
Urban Ecology 2.1	Location and size of vegetated areas		-

### Supporting Documentation

Credit	Requirement	Response	Status
Management 2.3a	Section J glazing assessment		-
Management 2.3b	Preliminary modelling report		-
Integrated Water Management 2.1	STORM report or MUSIC model		-
Operational Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Operational Energy 3.7	Average lighting power density and lighting type(s) to be used		-
Operational Energy 4.2	Specifications of the solar photovoltaic system(s)		-
Indoor Environment Quality 1.4	A short report detailing assumptions used and results achieved.		-

## Credit summary

### Management Overall contribution 4.5%



1.1 Pre-Application Meeting	0%
2.3 Thermal Performance Modelling - Non-Residential	100%
3.2 Metering - Non-Residential	N/A <span>⚡ Scoped Out</span> <small>there is only one tenant.</small>
3.3 Metering - Common Areas	0%
4.1 Building Users Guide	100%

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### IWM Overall contribution 22.5%



1.1 Potable Water Use	61%	✓ Achieved
2.1 Stormwater Treatment	100%	✓ Achieved
3.1 Water Efficient Landscaping	100%	
4.1 Building Systems Water Use	0%	

### Operational Energy Overall contribution 27.5%



1.1 Thermal Performance Rating - Non-Residential	37%	
2.1 Greenhouse Gas Emissions	100%	
2.2 Peak Demand	100%	
2.6 Electrification	100%	
2.7 Energy consumption	100%	
3.1 Carpark Ventilation	N/A	⚡ Scoped Out <small>No reason provided</small>
3.2 Hot Water	100%	
3.7 Internal Lighting - Non-Residential	100%	
4.1 Combined Heat and Power (cogeneration / trigeneration)	N/A	⚡ Scoped Out <small>No cogeneration or trigeneration system in use.</small>
4.2 Renewable Energy Systems - Solar	100%	
4.4 Renewable Energy Systems - Other	N/A	⚡ Scoped Out <small>No other (non-solar PV) renewable energy is in use.</small>

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**IEQ Overall contribution 16.5%**

		<b>Minimum required 50%</b>	<b>66%</b>	<b>✓ Pass</b>
1.4 Daylight Access - Non-Residential			33%	✓ Achieved
2.3 Ventilation - Non-Residential			72%	✓ Achieved
3.4 Thermal comfort - Shading - Non-Residential			100%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential			100%	
4.1 Air Quality - Non-Residential			100%	

**Transport Overall contribution 9.0%**

		<b>25%</b>
1.4 Bicycle Parking - Non-Residential		100%
1.5 Bicycle Parking - Non-Residential Visitor		0%
1.6 End of Trip Facilities - Non-Residential		0%
2.1 Electric Vehicle Infrastructure		0%
2.2 Car Share Scheme		0%
2.3 Motorbikes / Mopeds		0%

**Waste & Resource Recovery Overall contribution 5.5%**

		<b>66%</b>
1.1 Construction Waste - Building Re-Use		0%
2.1 Operational Waste - Food & Garden Waste		100%
2.2 Operational Waste - Convenience of Recycling		100%

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**Urban Ecology Overall contribution 5.5%**

		<b>50%</b>
1.1 Communal Spaces		100%
2.1 Vegetation		75%
2.2 Green Roofs		0%
2.3 Green Walls and Facades		0%
3.2 Food Production - Non-Residential		0%

**Innovation Overall contribution 9.0%**

		<b>0%</b>
1.1 Innovation		0%

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## Credit breakdown

### Management Overall contribution 4.5%

	42%
--	-----

### 1.1 Pre-Application Meeting 0%

Score Contribution	This credit contributes 42.9% 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?
Annotation	ESD professional been engaged to provide sustainability advice from TP design to construction
Question	Criteria Achieved ?
Project	No

### 2.3 Thermal Performance Modelling - Non-Residential 100%

Score Contribution	This credit contributes 28.6% towards the category score.
--------------------	---

Criteria	Has a preliminary thermal assessment been undertaken in accordance with NCC2022 Section 4.6.2?
Question	Criteria Achieved?
Other building	Yes

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Criteria	Has preliminary modelling been undertaken in accordance with either NCC2022 Section 4.6.2 (Energy Efficiency), or the Green Star?
Question	Criteria Achieved?
Other building	Yes

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### 3.2 Metering - Non-Residential N/A ◆ Scoped Out

there is only one tenant.	
This credit was scoped out	there is only one tenant.

### 3.3 Metering - Common Areas 0%

Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	Have all major common area services been separately submetered?
Annotation	Install check sub-meters for lighting, A/C and other ancillaries.
Question	Criteria Achieved ?
Other building	No

### 4.1 Building Users Guide 100%

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Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	Will a building users guide be produced and issued to occupants?
Annotation	BUG info: • Targets for the reduction of energy, water and waste; • A description of the buildings services and operational requirements for efficient and safe use of these systems; • Building initiatives to reduce energy and water use; • Monitoring provisions for energy, water and indoor environment quality; • To include lighting, A/C, hot water, water and solar system (if any); also insulation and glazing installed. • Transport facilities including car parking provisions, location of cyclist facilities and public transport information; • Emergency contact information; • ESD consultant to carry out a presentation to occupants on how to maximise building efficiency.
Question	Criteria Achieved ?
Project	Yes

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**IWM Overall contribution 22.5%**

		81% <span style="color: green;">✔</span> Pass
--	--	---

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

<b>Stormwater profile</b>	
Which stormwater modelling software are you using?:	Melbourne Water STORM tool
STORM score achieved:	100
Flow:	0 %
Total Suspended Solids:	90 %
Total Phosphorus:	74 %
Total Nitrogen:	100 %

<b>Rainwater tank profile</b>	
What is the total roof area connected to the rainwater tank?: RWT	519 m <sup>2</sup>
Tank Size: RWT	1,000 Litres
Irrigation area connected to tank: RWT	50.0 m <sup>2</sup>
Is connected irrigation area a water efficient garden?: RWT	Yes
Other external water demand connected to tank?: RWT	0.0 Litres/Day

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<b>Fixtures, fittings &amp; connections profile</b>	
Building:	Learning Centre
Showerhead:	Scope out
Bath:	Scope out
Kitchen Taps:	>= 6 Star WELS rating
Bathroom Taps:	>= 6 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?:	RWT
Non-potable water source connected to Toilets:	Yes
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		61% <span style="color: green;">✔</span> Achieved
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Score Contribution	This credit contributes 31.2% 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	912 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	590 kL
Output	Proposed (including rainwater and recycled water use)
Project	538 kL
Output	% Reduction in Potable Water Consumption
Project	41 %
Output	% of connected demand met by rainwater
Project	15 %
Output	How often does the tank overflow?
Project	Very Often
Output	Opportunity for additional rainwater connection
Project	76 kL

**2.1 Stormwater Treatment** 100% ✔ Achieved

Score Contribution	This credit contributes 56.2% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Output	Min STORM Score
Project	100
Output	STORM Score
Project	100

**3.1 Water Efficient Landscaping** 100%

Score Contribution	This credit contributes 6.2% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	Yes

**4.1 Building Systems Water Use** 0%

Score Contribution	This credit contributes 6.2% 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	No

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**Operational Energy Overall contribution 27.5%**

		Minimum required 50%	77% <span style="color: green;">✔</span> Pass
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**Project profile**

Use the BESS Deem to Satisfy (DtS) method for Non-residential spaces?:	Yes
Are you installing any renewable energy system(s) (other than solar photovoltaic)?:	No
Energy Supply:	All-electric

**Solar Photovoltaic system profile**

System Size (lesser of inverter and panel capacity): PV	10.0 kW peak
Orientation (which way is the system facing)?: PV	North
Inclination (angle from horizontal): PV	10.0 Angle (degrees)

**Non-residential Deemed-to-Satisfy profile**

Do all exposed floors and ceilings (forming part of the envelope) demonstrate meeting the required NCC2022 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2022 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

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1.1 Thermal Performance Rating - Non-Residential		37%
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Score Contribution	This credit contributes 36.4% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)?

2.1 Greenhouse Gas Emissions		100%
------------------------------	--	------

Score Contribution	This credit contributes 9.1% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?
Annotation	aiming towards 10% better than BCA Benchmark

2.2 Peak Demand		100%
-----------------	--	------

Score Contribution	This credit contributes 4.5% towards the category score.
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?

2.6 Electrification		100%
---------------------	--	------

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Score Contribution	This credit contributes 13.6% towards the category score.
Criteria	Is the development all-electric?
Question	Criteria Achieved?
Project	Yes
<b>2.7 Energy consumption</b>	100%
Score Contribution	This credit contributes 18.2% towards the category score.
Criteria	What is the % reduction in annual energy consumption against the benchmark?
<b>3.1 Carpark Ventilation</b>	N/A  Scoped Out
	No reason provided
This credit was scoped out	None
<b>3.2 Hot Water</b>	100%
Score Contribution	This credit contributes 4.5% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?
<b>3.7 Internal Lighting - Non-Residential</b>	100%
Score Contribution	This credit contributes 9.1% 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 J7D3a of the NCC 2022 Vol 1?
Question	Criteria Achieved ?
Other building	Yes
<b>4.1 Combined Heat and Power (cogeneration / trigeneration)</b>	N/A  Scoped Out
	No cogeneration or trigeneration system in use.
This credit was scoped out	No cogeneration or trigeneration system in use.
<b>4.2 Renewable Energy Systems - Solar</b>	100%
Score Contribution	This credit contributes 4.5% towards the category score.
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?
Output	Solar Power - Energy Generation per year
Other building	12,118 kWh
Output	% of Building's Energy
Other building	41 %
<b>4.4 Renewable Energy Systems - Other</b>	N/A  Scoped Out
	No other (non-solar PV) renewable energy is in use.
This credit was scoped out	No other (non-solar PV) renewable energy is in use.

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**IEQ Overall contribution 16.5%**

		<b>Minimum required 50%</b>	<b>66%</b>	<b>✔ Pass</b>
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<b>1.4 Daylight Access - Non-Residential</b>		33%	✔ Achieved
--	--	-----	------------

Score Contribution	This credit contributes 35.3% towards the category score.
Criteria	What % of the nominated floor area has at least 2% daylight factor?
Question	Percentage Achieved?
Other building	33 %

<b>2.3 Ventilation - Non-Residential</b>		72%	✔ Achieved
--	--	-----	------------

Score Contribution	This credit contributes 35.3% towards the category score.
Criteria	What % of the regular use areas are effectively naturally ventilated?
Question	Percentage Achieved?
Other building	75 %

Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?
Question	Percentage Achieved?
Other building	0 %

Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?
Question	Value
Other building	800 ppm

<b>3.4 Thermal comfort - Shading - Non-Residential</b>		100%	
--	--	------	--

Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?
Question	Percentage Achieved?
Other building	100 %

<b>3.5 Thermal Comfort - Ceiling Fans - Non-Residential</b>		100%	
---	--	------	--

Score Contribution	This credit contributes 5.9% towards the category score.
Criteria	What percentage of regular use areas in tenancies have ceiling fans?
Question	Percentage Achieved?
Other building	100 %

<b>4.1 Air Quality - Non-Residential</b>			
--	--	--	--

Score Contribution	This credit contributes 5.9% towards the category score.
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Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Other building	Yes
Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Other building	Yes
Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Other building	Yes

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**Transport Overall contribution 9.0%**

		25%
--	--	-----

**1.4 Bicycle Parking - Non-Residential** 100%

Score Contribution	This credit contributes 25% 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)?
Annotation	7-off are existing
Question	Criteria Achieved ?
Other building	Yes
Question	Bicycle Spaces Provided ?
Other building	30

**1.5 Bicycle Parking - Non-Residential Visitor** 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	

**1.6 End of Trip Facilities - Non-Residential** 0%

Score Contribution	This credit contributes 2.5% towards the category score.
Criteria	Where adequate bicycle parking has been provided. Is there also: * 1 shower for the first 5 employee bicycle spaces plus 1 to each 10 employee bicycles spaces thereafter, * changing facilities adjacent to showers, and * one secure locker per employee bicycle space in the vicinity of the changing / shower facilities?
Question	Number of showers provided ?
Other building	0
Question	Number of lockers provided ?
Other building	30
Output	Min Showers Required
Other building	1
Output	Min Lockers Required
Other building	30

**2.1 Electric Vehicle Infrastructure** 0%

Score Contribution	This credit contributes 25% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	No

**2.2 Car Share Scheme** 0%

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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

**2.3 Motorbikes / Mopeds** 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

**Waste & Resource Recovery Overall contribution 5.5%**

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**1.1 Construction Waste - Building Re-Use** 0%

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	No

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**2.1 Operational Waste - Food & Garden Waste** 100%

Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Annotation	The school has existing compost bins and a worm farm already.
Question	Criteria Achieved ?
Project	Yes

**2.2 Operational Waste - Convenience of Recycling** 100%

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	Yes

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**Urban Ecology Overall contribution 5.5%**

		50%
<b>1.1 Communal Spaces</b>		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?	
Annotation	lunch room and recreation room.	
Question	Common space provided	
Other building	50.0 m <sup>2</sup>	
Output	Minimum Common Space Required	
Other building	50 m <sup>2</sup>	
<b>2.1 Vegetation</b>		75%
Score Contribution	This credit contributes 50% towards the category score.	
Criteria	How much of the site is covered with vegetation compared to the total site area?	
Question	Percentage Achieved ?	
Project	20 %	
<b>2.2 Green Roofs</b>		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	
<b>2.3 Green Walls and Facades</b>		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green wall or green façade?	
Question	Criteria Achieved ?	
Project	No	
<b>3.2 Food Production - Non-Residential</b>		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Other building	0.0 m <sup>2</sup>	
Output	Min Food Production Area	
Other building	13 m <sup>2</sup>	

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**Innovation Overall contribution 9.0%**

	0%
--	----

<b>1.1 Innovation</b>	0%
-----------------------	----

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

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## Appendix B – WSUD Layout and Storm Rating



### STORM Rating Report

TransactionID: 0  
Municipality: GREATER GEELONG  
Rainfall Station: GREATER GEELONG  
Address: 81 Minerva Road

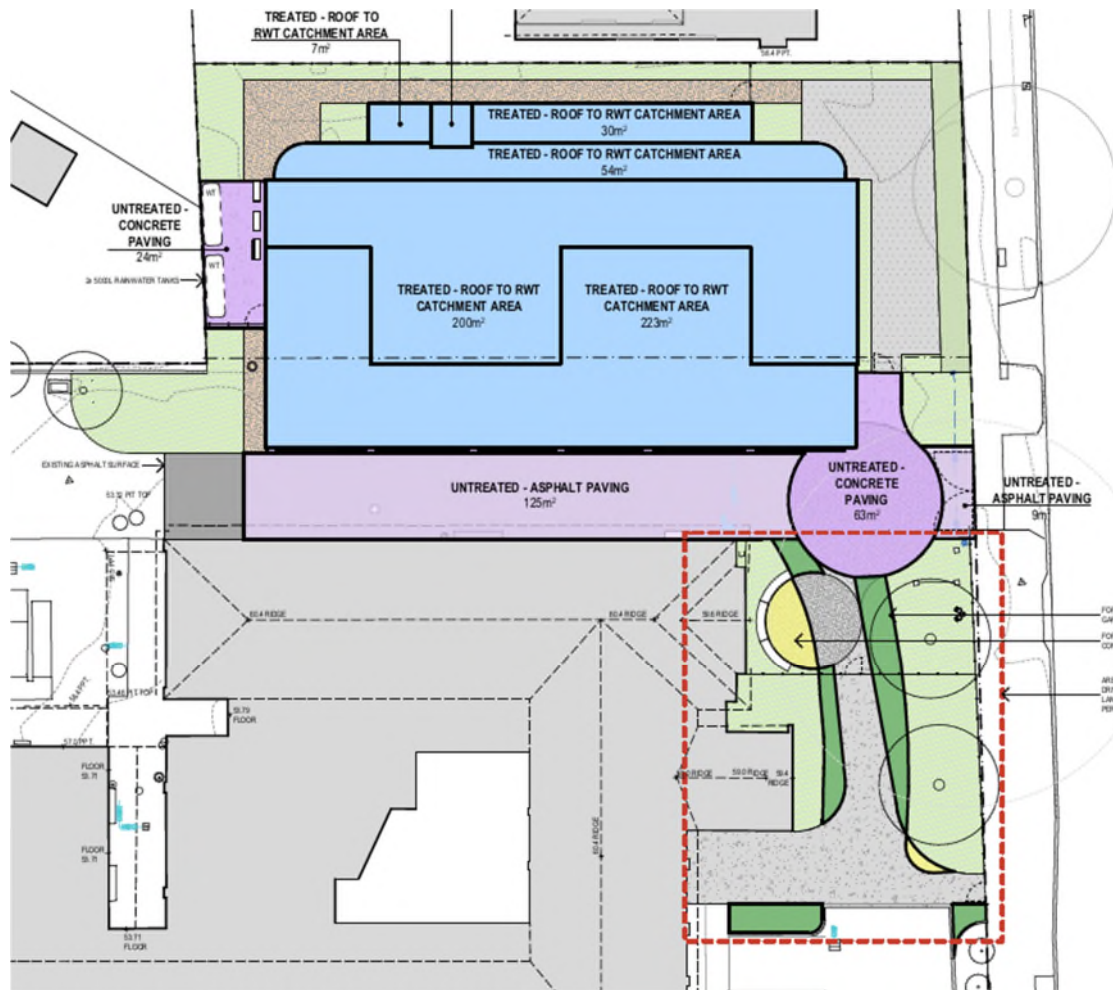
Herne Hill  
VIC

Assessor:  
Development Type: Commercial/Retail  
Allotment Site (m2): 1,236.00  
STORM Rating %: 101

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Treated - Roof Catchment	519.00	Rainwater Tank	10,000.00	25	143.40	68.00
Untreated - Concrete	87.00	None	0.00	0	0.00	0.00
Untreated - Asphalt	134.00	None	0.00	0	0.00	0.00

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## Appendix C Wall-Glazing Calculations

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### Project Summary

**Date**  
17/12/2024

**Name**  
Mr. Karim Ghobrial

**Company**  
EEC

**Position**  
ESD Consultant

**Building Name / Address**  
Stage 1, Holy Spirit Parish School  
83 Minerva Road, Manifold Heights

**Building State**  
VIC

**Climate Zone**  
Climate Zone 6 - Mild temperate

**Building Classification**  
Class 9b - churches, chapels or the like

**Stores Above Ground**  
1

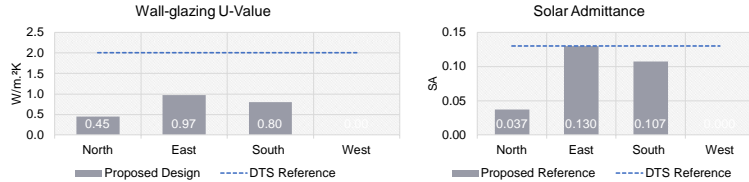
**Tool Version**  
1.5 (May 2024)

The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Aspects).

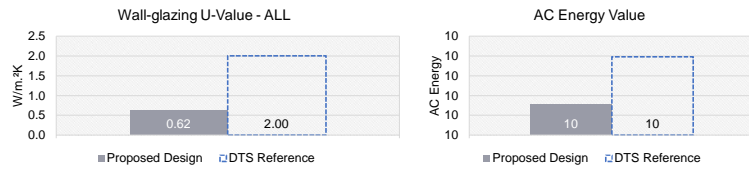
Compliant Solution =    
Non-Compliant Solution =  

	Method 1				Method 2 All
	North	East	South	West	
Wall-glazing U-Value (W/m <sup>2</sup> .K)	0.45	0.97	0.80	0.00	0.62
Solar Admittance	0.04	0.13	0.11		
AC Energy Value					10

#### Method 1



#### Method 2



### Project Details

	North	East	South	West
Glazing Area (m <sup>2</sup> )	18	10.08	35.28	0
Glazing to Façade Ratio	10%	22%	18%	0%
Glazing References	casement	casement	casement louvers	
Glazing System Types	Casement USER (DEFINED)	Casement	Casement USER (DEFINED)	
Glass Types	Single Glazing - low-E coating	Single Glazing - low-E coating	Single Glazing - low-E coating	
Frame Types	Aluminium	Aluminium	Aluminium	Aluminium
Average Glazing U-Value (W/m <sup>2</sup> .K)	4.50	4.50	4.50	
Average Glazing SHGC	0.60	0.60	0.60	0.00
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m <sup>2</sup> )	162	36.5	162	36.5
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	USER (DEFINED)	USER (DEFINED)	USER (DEFINED)	USER (DEFINED)
Wall Thickness	214	214	214	214
Average Wall R-value (m <sup>2</sup> .K/W)				
Solar Absorptance	0.8	0.8	0.8	0.8

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## Appendix E – Daylight Modelling and Report

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# DAYLIGHT ASSESSMENT

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Holy Spirit Parish School  
School Development Project  
*Based on drawings dated Dec 2024*

Consultant: Sherif Ghobrial  
Client: Minx Architecture

Date: 17/12/2024

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## Contents

1.0	Project Scope.....	3
2.0	Methodology and Process.....	3
3.0	Computer Daylight Modelling.....	4
	Table 2 Summary Outcome .....	4
3.0	Conclusions and Summary .....	8

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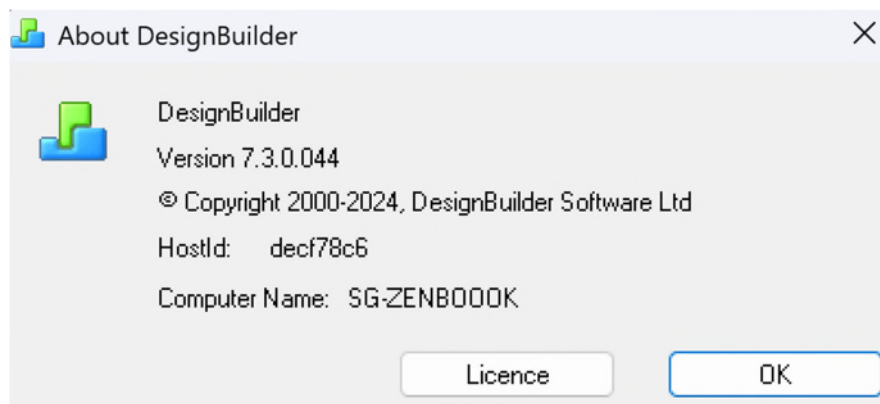
## 1.0 Project Scope

The project is Holy Spirit Parish School located at 81 & 83 Minerva Road Manifold Heights. This is a proposed school development project. Refer to preliminary drawings by *Minx Architecture Pty Ltd*, drawings dated Dec 2024.

Purpose of this exercise is to carry out daylight assessment for the school rooms & offices to Provide daylight calculations to indicate at minimum 30% of the floor areas is achieving 2% DF (Daylight factor).

## 2.0 Methodology and Process

Daylight assessment Ver 6.1.6.005 has been carried out by computer daylight modelling for the zones as requested by Council. Design Builder Platform has been used for the modelling.



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### 3.0 Computer Daylight Modelling

As noted earlier, computer daylight modelling has been used to assess. This does not represent the whole building.

Some assumptions for the Visible Light Transmittance (VLT) for the glazing values and the internal surfaces reflectance were made to complete the analysis; the assumptions are as follow:

- **Glazing:** 75% VLT (clear glass)
- **Floors:** 30% reflectivity
- **Walls:** 70% reflectivity
- **Ceilings:** 80% reflectivity
- CIE Overcast Design Sky (10000Lux)

**Table 2 Summary Outcome as per drawings**

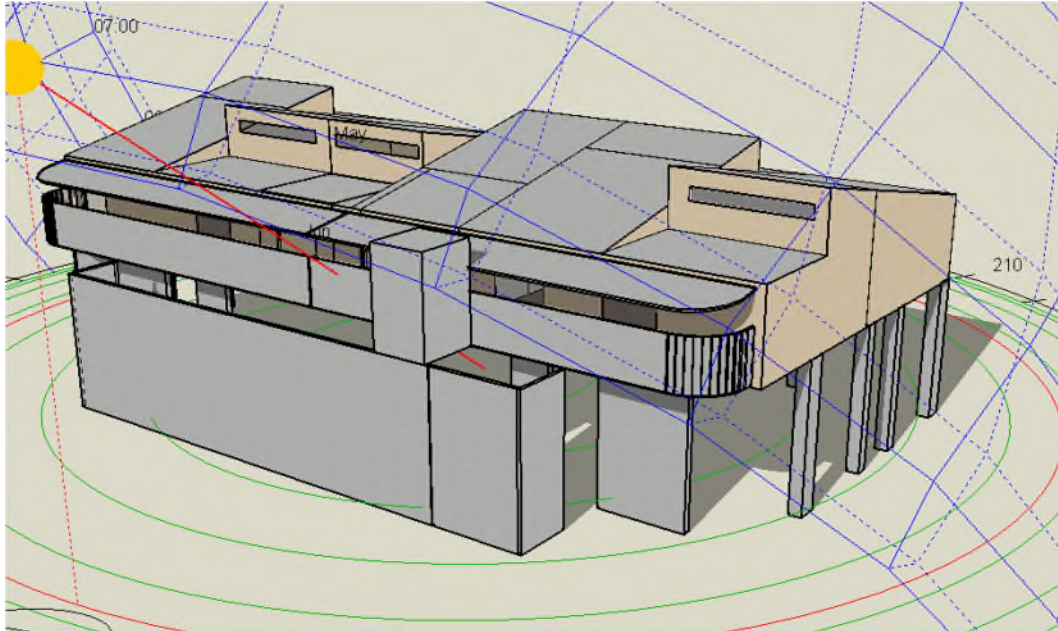
All Relevant Rooms						
Block	Zone	Floor Area (m2)	Floor Area within Limits (m2)	Floor Area above Threshold (%)	Average Daylight Factor (%)	
1st floor	airlock	6.959	2.53	36.364	1.999	
1st floor	collaborative space	55.979	0	0	0.952	
1st floor	Learning 1	69.096	2.333	3.377	0.89	
1st floor	Learning 2	69.096	32.305	46.753	3.241	
1st floor	Learning 3	69.832	18.954	27.143	2.497	
1st floor	Learning 4	69.832	43.622	62.468	4.092	
1st floor	small group 3	11.665	9.272	79.487	5.281	
1st floor	small group space 1	11.406	2.168	19.008	1.658	
1st floor	staff planning	12.89	12.89	100	6.432	
<b>total average</b>		<b>377</b>	<b>124</b>	<b>33%</b>	<b>3.0</b>	

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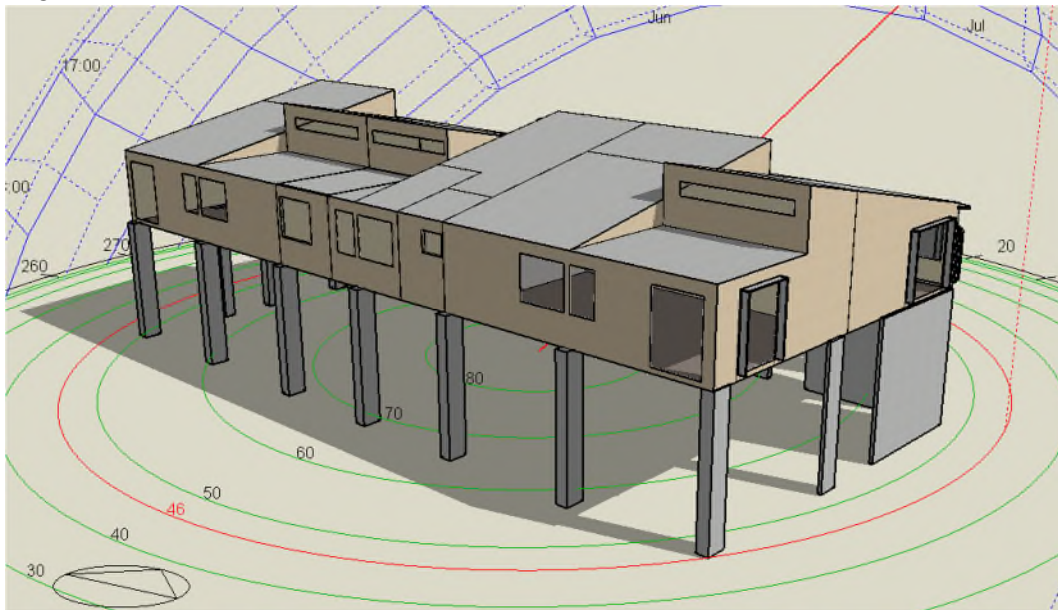
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View 1



View 2



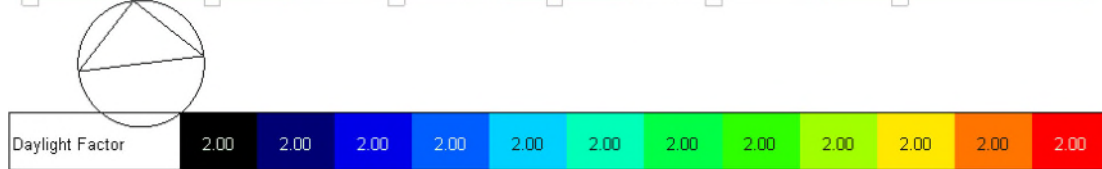
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### 1st floor heap map



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## 4.0 Conclusions and Summary

BESS requirement for the child rooms & relevant spaces to achieve a daylight factor greater than 2.0% to 30% of the floor area. **Table 2**, shows we meet requirements at 33% for the child rooms achieving the required daylight factor and a combined average of DF.

Kind Regards,  
Karim Ghobrial  
Bach of Electrical Engineering  
Energy and Sustainability Consultant

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