



ESD Energy Performance and Green Star Report
14-22 Wentworth Street & 19-21 South Steyne, Manly
Royal Far West

ED-RPT-0001

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Contents

1	Introduction	3
1.1.	Sustainable Design Frameworks	3
2	Project Description	4
2.1.	Information Sources.....	4
3	Ecologically Sustainable Design	5
3.1.	Energy	5
3.2.	Transport.....	5
3.3.	Materials	6
3.4.	Water	6
3.5.	Construction.....	6
3.6.	Land Use & Ecology.....	7
3.7.	Emissions & Waste.....	7
3.8.	Climate Change Adaptation	7
4	Conclusion	7

Appendix A: Green Star Scorecard

Revision History

Revision	Reference	Description	Author	Date
1.0	4901.01	ESD Energy Performance and Green Star Report	Luke Williams	10 th June 2022
2.0	4901.02	Update to architectural documentation reference	Luke Williams	14 th Oct 2022

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1 Introduction

Aspire Sustainability Consulting has been engaged to prepare an Ecologically Sustainable Design (ESD) report to accompany the Development Application regarding the proposed Royal Far West development at 14-22 Wentworth Street & 19-21 South Steyne, Manly. This report outlines the sustainable design initiatives being explored for the development, demonstrating a commitment to satisfy national & state legislation in addition to local planning controls.

1.1. Sustainable Design Frameworks

The development shall be designed in line with the following sustainable design frameworks, ensuring key ESD design principles are implemented across all aspects of design:

- NCC 2022;
- Building Sustainability Index (BASIX);
- 5 Star Green Star Design & As Built v1.3.

1.1.1. NCC 2022 Volume 1 Section J (Energy Efficiency)

Provisions within Section J of the NCC relate to energy efficiency and the reduction of Greenhouse Gas Emissions for Class 2 to 9 developments. Aspects of design required to be addressed in Section J include the façade, building envelope, lighting, HVAC, energy metering, building sealing and ventilation. All portions of the development will comply with NCC Section J, however it is anticipated the Class 2 portions of the development will be required to comply with BASIX as opposed to provisions within NCC Section J 2022.

1.1.2. Building Sustainability Index (BASIX)

BASIX is the primary framework applied to Class 2 portions of developments in addition to their associated common areas. Minimum performance requirements regarding the building fabric, appliances (energy and water efficiency) and central building systems must be achieved.

1.1.3. Green Star Design & As Built v1.3

Green Star is an internationally recognised rating system that considers sustainability across all aspects of a projects design. Green Star extends beyond energy and water efficiency, aiming to reduce the impacts of climate change, enhance the health and quality of life within buildings, restore and protect biodiversity and ensure the ongoing optimum operational performance of buildings.

As outlined in Schedule 3 of the Modified Concept Approval (Application No. MP 10_0159 MOD 1 dated 20 April 2022), design initiatives consistent with a 5 Star Design & As Built v1.3 rating will be achieved across all stages of the development.

1.1.4. Aim of Report

The following sections outline design initiatives being considered that reduce the environmental impact of the design, construction, and operation of the development, highlighting alignment with applicable targets and planning controls.

2 Project Description

The development is located at 14-22 Wentworth Street & 19-21 South Steyne, Manly NSW 2095.

The project sees the implementation of Stages 3 and 4 of the Concept Approval as modified (Application # MP10_0159 MOD 1) and involves the retention and alterations to the previously constructed Stages 1 and 2 (hospital facility “Centre for Excellence” now known as the ‘CCK’ building) as well as alterations and additions to Drummond House and the construction of mixed use buildings which incorporate tourist and visitor accommodation, residential apartments and retail/ commercial uses with basement parking and landscaping.

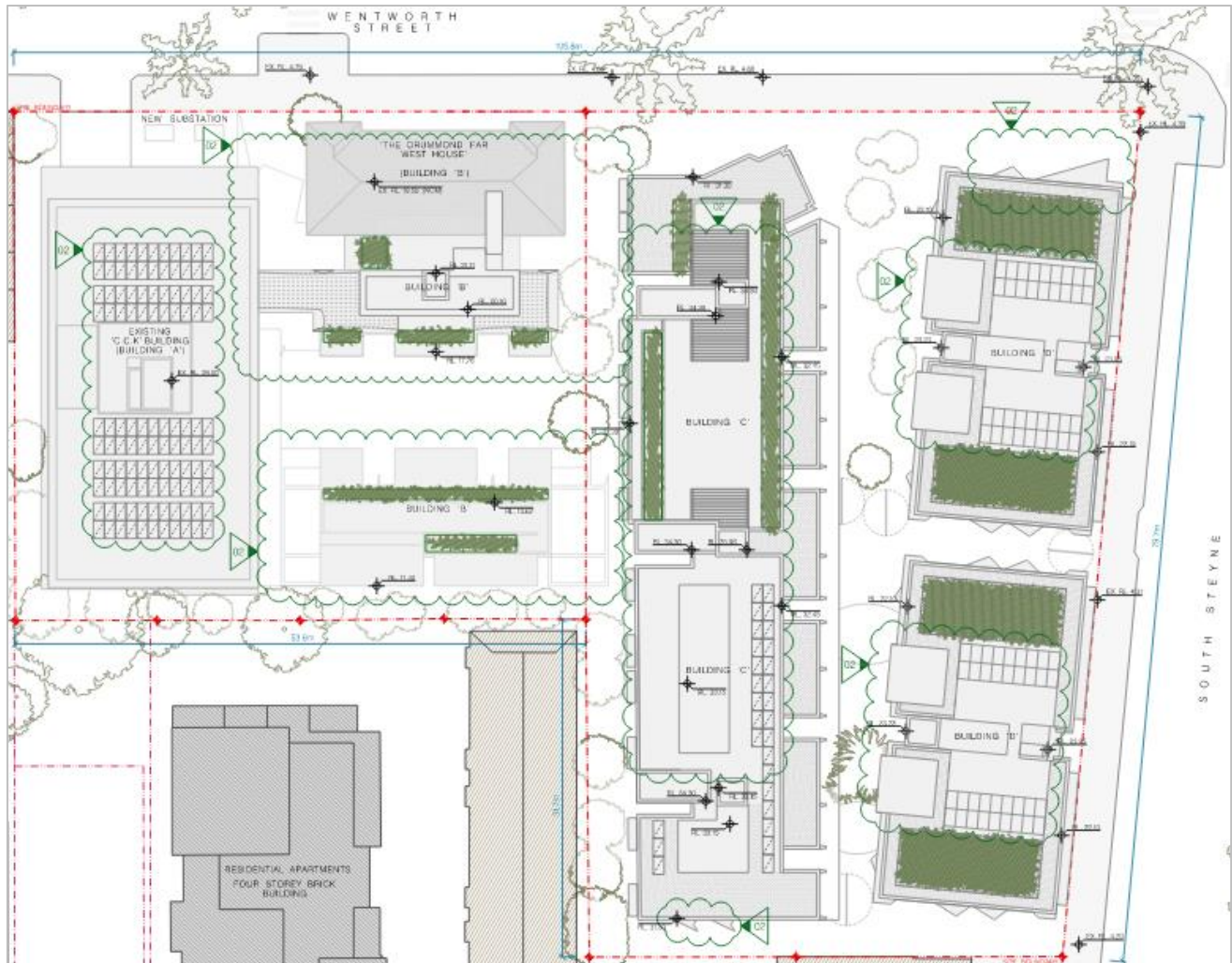


Figure 1: Site Layout

2.1. Information Sources

- Green Star Design & As Built v1.3 Submission Guidelines;
- NCC Section J 2019 Volume 1;
- Architectural drawings: DA Issue 02, dated 13th October 2022.

3 Ecologically Sustainable Design

The following Sections contain sustainable design initiatives currently being explored by the design team in line with the ecologically sustainable design categories outlined below:

- Energy;
- Transport;
- Materials;
- Water;
- Construction;
- Land Use & Ecology;
- Emissions & Waste; &
- Climate Change Adaptation.

During design development, feedback from the design team will drive discussions with the aim of finalising the approach regarding sustainable design for the Royal Far West development.

3.1. Energy

The Royal Far West development consider the following initiatives throughout design development:

- Metering in line with minimum performance standards to track and monitor energy consumption;
- Efficient, air-cooled HVAC systems that eliminate water consumption associated with heat rejection;
- High Efficiency gas systems for hot water heating;
- Energy efficient white goods;
- Compliance with NCC 2022 Energy Efficiency Requirements (Section J);
- Large Solar PV system to provide a portion of the sites power, whilst reducing peak power demands;
- Energy efficient LED lighting throughout with appropriate motion & daylight controls.

Passive design strategies currently included in design are outlined below:

- A light external colour scheme that reduces the sites contribution to the urban heat island effect, also lowering internal temperatures by minimising the heat being absorbed through the roof and walls;
- The addition of vegetation throughout the site to provide shade and reduce impacts associated with the urban heat island effect;
- Maximising natural ventilation, with cross ventilation to a large number of residential apartments;
- Walls comprising high thermal mass, providing a cooler, more comfortable internal environment during warmer days whilst reducing energy consumption.

3.2. Transport

The development is located in the centre of Manly, well connected to a variety of sustainable modes of transport such as bicycle tracks, Ferries, and bus stops. The site achieves a 'walk score' of 96/100 and is therefore defined by Walk Score as a walker's paradise.

Provisions to facilitate active transport modes will be implemented in design, including an end of trip facility comprising showers and lockers in addition to bicycle parking facilities.

3.3. Materials

The environmental footprint of the development can be reduced through the procurement of sustainable products. This can include products produced with lower than typical energy consumption during manufacture, made with reused content, or not transported large distances to its point of use.

The sustainable materials strategy for the development will explore the following items:

- Environmental Performance Declarations (EPD's) for plasterboard and flooring;
- Recycled content in products where appropriate;
- FSC timber;
- Concrete with reduced Portland cement quantities;
- Products specified to contain low VOC & formaldehyde, improving internal air quality.

3.4. Water

The development will reduce water consumption by incorporating the following water saving measures into design:

- Installing fixtures and fittings in line with Green Star D&AB best practice requirements;
- Ensuring native plant species are incorporated throughout and use of efficient drip irrigation methods where possible;
- Rainwater tank to reduce the potable water consumption of the development and reduce the strain on central water infrastructure;
- Air cooled HVAC systems, reducing water associated with heat rejection.

Table 2: Recommended Water Efficiency of Fixtures & Appliances

Fixture/Equipment Type	WELS Rating
Taps	5 stars
Urinals	5 stars
Toilet	4 stars
Showers	3 stars (> 6 but <= 7.5)
Clothes Washing Machines	Not Provided
Dishwashers	5 Stars

3.5. Construction

Sustainable construction practices that will be considered for implementation throughout construction include:

- Contractor construction waste management plan to investigate >90% of construction waste by weight being diverted from landfill;
- Responsible management systems such as an Environmental Management Plan & implementing an Environmental Management System in line with ISO 14001;
- Incorporating information to site inductions relating to sustainable design, mental health and well being to site inductions and ensuring resources are made available to support site workers if needed throughout the construction of the site;
- Concrete with a portion of Portland cement replaced with recycled aggregate;
- Reuse of existing building elements where possible.

3.6. Land Use & Ecology

The development aims to reduce potential negative impacts resulting from urban development and enhance local ecology by implementing the following design features:

- Plant beds & trees at multiple locations which allow for deep planting and significant canopy cover, providing shade, improving air quality as well as enhancing local levels of biodiversity;
- Utilising stormwater and WSUD features, decreasing the strain on central water infrastructure systems, and providing safe havens for local biodiversity;
- Light colour schemes to external surfaces and areas of deep soil vegetation that reduce the urban heat island effect.

3.7. Emissions & Waste

ESD initiatives associated with emissions and waste currently considered in design include:

- Stormwater & WSUD features, reducing the sites impact from stormwater runoff and pollution;
- Specifying air cooled HVAC systems, eliminating the risk associated with legionella disease when cooling towers are installed on site;
- Adopting an Operational Waste Management Plan (OWMP) for the development, and ensuring facilities are provided allow the separation of various waste streams when the site is in operation;
- Carrying out a hazardous materials survey to identify and safely dispose of any contaminated waste.

The potential to use air conditioning systems with R14a refrigerants that have a low Global Warming Potential compared to R32 will also be explored, subject to no detrimental impacts on air conditioning system efficiency.

3.8. Climate Change Adaptation

To ensure the long-term durability of the site and its ability to adapt to a changing climate, the following measures will be considered in design:

- Rainwater tank to reduce the potable water consumption of the development and reduce the strain on central water infrastructure;
- Light colour schemes that keep the external surfaces of the building cool, reducing impacts of the urban heat island effect & keeping naturally ventilated spaces cool;
- Increasing capacity of mechanical and electrical distribution boards to accommodate an increase in building electrical loads associated with a warming climate;
- Ensuring the development is constructed in accordance with recognised standards regarding wind tolerance and impacts from hail;
- Offering a place of respite during extreme weather events.

4 Conclusion

This report demonstrates the development is on track to achieving sustainability requirements contained within national, state, and local planning controls. Throughout design development detailed investigations will be carried out to further refine the ESD strategy for the development, providing an exceptional example of sustainable design to the community of Manly and beyond.

Appendix A contains the Green Star Scorecard that has been considered to date for the development.

Appendix A

Design & As Built v1.3 Scorecard



Project:	Royal Far West
Targeted Rating:	5 Star
Date:	Jun-22

Core Points Available	Residential	Commercial Office	Drummond
100	63.0	62.0	65.0

CATEGORY / CREDIT	AIM OF THE CREDIT / SELECTION	CODE	CREDIT CRITERIA	POINTS AVAILABLE	Residential	Commercial Office	Drummond	Responsible Disciplines	High Level Credit Requirements
Management				14					
Green Star Accredited Professional	To recognise the appointment and active involvement of a Green Star Accredited Professional in order to ensure that the rating tool is applied effectively and as intended.	1.0	Accredited Professional	1	1	1	1	Aspire	Green Star Accredited Professional (GSAP) to be engaged to manage submission.
Commissioning and Tuning	To encourage and recognise commissioning, handover and tuning initiatives that ensure all building services operate to their full potential.	2.0	Environmental Performance Targets	-	Complies	Complies	Complies	Aspire / Architect / Services	Design intent report/owners project requirements for energy, water, IEQ aspirations will need to be prepared.
		2.1	Services and Maintainability Review	1.0	1	1	1	Head Contractor / Services / ICA	Comprehensive services and maintainability review must take place during design and prior to construction, and summarised in a report. Commissioning manager to be engaged to coordinate and oversee commissioning and tuning activities.
		2.2	Building Commissioning	1	0	0	0	Head Contractor / Services / ICA	Detailed commissioning specification, commissioning plan and commissioning to CIBSE/ASHRAE/Aira standard required. Air permeability testing required. Early engagement with Air Tightness Contractor is recommended.
		2.3	Building Systems Tuning	1	1	1	1	Head Contractor / Services / ICA	Commitment to quarterly tuning and re-commissioning of building services after 12 months required. Commitment to be captured in services specifications.
		2.4	Independent Commissioning Agent	1	0	0	0	ICA	An independent commissioning professional (separate from the design team) would need to be engaged.
Adaptation and Resilience	To encourage and recognise projects that are resilient to the impacts of a changing climate and natural disasters.	3.1	Implementation of a Climate Adaptation Plan	2	2	2	2	Aspire	Qualified professional will need to be engaged to undertake the research and reporting. Measures identified at concept to be addressed during detailed design.
Building Information	To recognise the development and provision of building information that facilitates understanding of a building's systems, operation and maintenance requirements, and environmental targets to enable the optimised performance.	4.1	Building Information	1	1	1	1	Head Contractor / Aspire / Client	GBM manual and Building User Guide to be prepared. Building user information must be provided in digital format and made available to occupants.
Commitment to Performance	To recognise practices that encourage building owners, building occupants and facilities management teams to set targets and monitor environmental performance in a collaborative way.	5.1	Environmental Building Performance	1	1	1	1	Client / Aspire	Environmental targets to be set for two of the following: - GHG Emissions/ Energy, Potable Water, Operational Waste or Indoor Environment Quality. Formal commitment must be made.
		5.2	End of Life Waste Performance	1	1	1	1	Client / Aspire	A formal commitment to reduce demolition waste at the end of life of an interior fitout/base building component must be made.
Metering and Monitoring	To recognise the implementation of effective energy and water metering and monitoring systems.	6.0	Metering	-	Complies	Complies	Complies	Services / Head Contractor	Metering required for major energy and water end uses. Alarms to flag inaccurate readings.
		6.1	Monitoring Systems	1	1	1	1	Services / Head Contractor	Monitoring system and strategy, capable of capturing and processing data produced by water & energy meters. Metering equipment must be validated in accordance with the most current 'Validating Non-Utility Meters for NABERS Ratings' protocol.
Responsible Building Practices	To reward projects that use best practice formal environmental management procedures during construction.	7.0	Environmental Management Plan	-	Complies	Complies	Complies	Head Contractor	Head contractor must develop project specific best practice EMP.
		7.1	Formalised Environmental Management System	1	1	1	1	Head Contractor	EMS must be certified against ISO14001 standards (or equivalent).
		7.2	High Quality Staff Support	1	1	1	1	Head Contractor	Previously an innovation point. At least 3 issues (mental and physical) addressed through programs and policies. Sustainability training to site workers on induction.
Operational Waste	Prescriptive Pathway	8A	Performance Pathway - Specialist Plan	-	0	0	0	Waste Consultant	Operational Waste Management Plan to be prepared by suitably qualified professional.
		8B	Prescriptive Pathway - Facilities	1	1	1	1	Waste Consultant / Architect	Facilities to be provided to allow 3 distinct waste streams to be separated at source.
Total				14	12	12	12		

Indoor Environment Quality				17					
Indoor Air Quality	To recognise projects that provide high air quality to occupants.	9.1	Ventilation System Attributes	1	1	1	1	Mechanical / Architect / Head Contractor	Requires co-ordination from mechanical services and contractor regarding position of air intakes, design for ease of maintenance and cleaning and ductwork to be cleaned prior to occupation.
		9.2	Provision of Outdoor Air	2	2	1	2	Mechanical / Head Contractor	Involves increasing the provision of outdoor air by 50% based on code requirements. Naturally ventilated spaces to comply with AS 1668.4:2012.
		9.3	Exhaust or Elimination of Pollutants	1	1	1	1	Mechanical / Architect / Head Contractor	Provision for exhaust in printing/photocopying rooms. Guidance to be provided to the tenant to ensure appropriate installation. Each print room must achieve a minimum flow rate in accordance with AS1668.2-2012. Dedicated kitchen exhausts required.
Acoustic Comfort	To reward projects that provide appropriate and comfortable acoustic conditions for occupants.	10.1	Internal Noise Levels	1	1	1	1	Acoustic	Ambient noise levels in primary and secondary spaces to be no more than 55dB(A) above the lower figure in Table 1 of AS/NZS 2107:2016.
		10.2	Reverberation	1	0	1	0	Acoustic	Reverberation times in primary and secondary spaces to be below maximum stated in 'Recommended Reverberation Time' in Table 1 of AS/NZS 2107:2016. Acoustic pre-testing recommended.
		10.3	Acoustic Separation	1	1	1	1	Acoustic	Project would need to addresses noise transmission in enclosed spaces (meeting rooms, private offices, etc).

Lighting Comfort	To encourage and recognise well-lit spaces that provide a high degree of comfort to users.	11.0	Minimum Lighting Comfort	-	Complies	Complies	Complies	Electrical / Architect	Primary and secondary spaces will have lighting that is flicker free and accurately address the perception of colour in the space. CRI of at least 80 for all luminaires.
		11.1	General Illuminance and Glare Reduction	1	1	1	1	Electrical / Architect	Best practice general illuminance as per AS1680.1/2. Fitting all bare light sources with baffles, louvers, translucent diffusers or other means that obscures the direct light source from all viewing angles will be achievable for open plan office areas
		11.2	Surface Illuminance	1	1	0	1	Electrical / Architect	An surface reflectance for ceilings of at least 0.75; and a direct/indirect lighting system present such that the ceiling area has an average surface illuminance of at least 30% of the lighting levels on the working plane. The surface reflectance value of 0.75 corresponds to a matte flat white ceiling. The surface reflectance value for the final finish must be obtained from the manufacturer's data sheet.
		11.3	Localised Lighting Control	1	1	1	1	Electrical / Architect	For 95% of the nominated area, occupants have the ability to control the lighting in their immediate environment. This includes turning the lights on and off and adjusting their light levels. One light can be controlled by one or more individuals, however, the project team must justify why and how, this is conducive to localised control.
Visual Comfort	To recognise the delivery of well-lit spaces that provide high levels of visual comfort to building occupants.	12.0	Glare Reduction	-	Complies	Complies	Complies	Architect	Blinds with occupancy control and a VLT <10% must provide glare reduction to 95% of the area of viewing facade and skylights.
		12.1	Daylight	2	1	1	1	Architect / Aspire	Requires daylight modelling to be undertaken.
		12.2	Views	1	1	1	1	Architect / Aspire	Involves 60% of the nominated area having a clear line of sight to a high quality internal or external view.
Indoor Pollutants	To recognise projects that safeguard occupant health through the reduction in internal air pollutant levels.	13.1	Paints, Adhesives, Sealants and Carpets	1	1	1	1	Architect / Head Contractor	At least 95% of all internally applied paints, adhesives, sealants and carpets must meet stipulated 'Total VOC limits'
		13.2	Engineered Wood Products	1	1	1	1	Architect / Head Contractor	At least 95% (by area) of all engineered wood products must meet stipulated formaldehyde emission limits.
Thermal Comfort	To encourage and recognise projects that achieve high levels of thermal comfort.	14.1	Thermal Comfort	1	0	1	1	Aspire / Architect	Modelling required to demonstrate compliance. Blinds to be included as base building provision.
		14.2	Advanced Thermal Comfort	1	0	0	0	Aspire / Architect	As above, modelling will confirm whether point is achievable.
Total				17	13	13	14		

Energy					22				
Greenhouse Gas Emissions	Conditional Requirement: BASIX Pathway	15C 15E	Conditional Requirement	-	Complies	Complies	Complies		
Greenhouse Gas Emissions	BASIX Pathway Reference Building Pathway	15C 15E	Greenhouse Gas Emission Reductions	-	5	5	5		Involves various measures implemented across all energy consuming end uses regarding the reduction of Greenhouse Gas Emissions across site.
Peak Electricity Demand Reduction	Prescriptive Pathway	16A	Prescriptive Pathway - On-site Energy Generation	1	0	0	0	Aspire / Client / Services / Head Contractor	Modelling required to determine achievability of points - one point for a 20% reduction in peak electricity demand. More likely if solar PV is increased. Additional items with efficient lighting and regeneration on lifts will help.
		16B	Performance Pathway - Reference Building	-	0	0	0		Modelling required to determine achievability of points - one point for a 20% reduction in peak electricity demand. More likely if solar PV is increased. Additional items with efficient lighting and regeneration on lifts will help.
Total				38	5	5	5		

Transport		10							
Sustainable Transport	Prescriptive Pathway	17A.1	Performance Pathway	0	0	0	0	Traffic Consultant	Consultation with transport expert to determine potential for additional points via the performance pathway.
		17B.1	Access by Public Transport	3	1	1	1	Aspire	Three points available per public transport calculator.
		17B.2	Reduced Car Parking Provision	1	0	0	0	Architect / Client / Head Contractor	Reduced parking compared to benchmark based on GFA/NLA.
		17B.3	Low Emission Vehicle Infrastructure	1	1	1	1	Architect / Electrical / Client	5% of parking to be for electric vehicles with charging infrastructure provided for each space. Or 15% spaces dedicated for low emission vehicles.
		17B.4	Active Transport Facilities	1	0	0	0	Architect / Client / Head Contractor	EOT to be provided with specific requirements for locker, shower and bicycle parking quantities.
		17B.5	Walkable Neighbourhoods	1	1	1	1	Aspire	Point awarded on proximity to local amenities.
Total				7	3	3	3		

Water									
				12					
Potable Water	Prescriptive Pathway	18A.1	Potable Water - Performance Pathway	0	0	0	0		
		18B.1	Sanitary Fixture Efficiency	1	1	1	1	Architect / Hydraulics	Fixtures to achieve: 5 Star taps, 5 Star Urinals, 4 Star toilets, 3 Star showers, 4.5 Star clothes washing machines (EFGS increase from 4 Star GS requirement), 5 Star dishwashers.
		18B.2	Rainwater Reuse	1	0	0	0	Hydraulics	100/m2 GFA rainwater storage capacity.
		18B.3	Heat Rejection	2	2	2	2	Mechanical	Waterless heat rejection.
		18B.4	Landscape Irrigation	1	1	1	1	Landscape Consultant / Hydraulics	No potable water used for irrigation, or drip lation with moisture sensor override installed.
		18B.5	Fire System Test Water	1	1	1	1	Fire / Hydraulics	Fire system requirements: The fire protection system does not expel water for testing; The fire protection system includes temporary storage for 80% of the routine fire protection system test water and maintenance drain-downs for reuse on-site calculated on the basis that any single zone is drained down annually; or If sprinkler systems are installed, each floor must be fitted with isolation valves or shut-off points for system-by-system testing.
Total				6	5	5	5		

Materials									
14									
Life Cycle Impacts	Prescriptive Pathway - Life Cycle Impacts	19A.1	Comparative Life Cycle Assessment	3	3	3	3	LCA Consultant	
		19A.2	Additional Life Cycle Impact Reporting	4	3	3	3	LCA Consultant	
		19B.1	Concrete	3	0	0	0	Structural / Head Contractor	30-40% of portland cement to be reduced and replaced with a supplementary cementitious material. 50% of water used in concrete mix to be reclaimed water. 40% of coarse aggregate (measured by mass of all project concrete mixes) in concrete is crushed slag aggregate or another alternative material.
		19B.2	Steel	1	0	0	0	Structural / Head Contractor	Reduced mass of steel framing or steel reinforcements by 5% against a justified reference case.
		19B.3	Building Reuse	4	0	0	0	Architect / Head Contractor	Not applicable
		19B.4	Structural Timber	4	0	0	0	Structural / Head Contractor	Not applicable

Responsible Building Materials	To reward projects that include materials that are responsibly sourced or have a sustainable supply chain.	20.1	Structural and Reinforcing Steel	1	1	1	1	Structural / Head Contractor	95% of all steel is sourced from a responsible steel maker and either 60% of fabricated structural steelwork is supplied by a steel fabricator accredited to AS1, or 60% of all reinforcing bar and mesh is produced using energy-reducing processes in its manufacture.
		20.2	Timber Products	1	1	1	1	Architect / Head Contractor	95% of all timber used in building and construction must either be certified by a forest certification scheme that meets GBCA's criteria, or from a reused source
		20.3	Permanent Formwork, Pipes, Flooring, Blinds and Cables	1	1	1	1	Architect / Services / Head Contractor	90% of all permanent formwork, pipes, flooring, blinds and cables either do not contain PVC or meet the GBCA's best practice guidelines for PVC
Sustainable Products	To encourage sustainability and transparency in product specification.	21.1	Product Transparency and Sustainability	3	1	1	1	Architect / Head Contractor	1 point = 3% compliant products, 2 points = 6% compliant products, 3 points = 9% compliant products (by cost against total project materials cost). FF&E, Steel, Third Party Certified Timber etc.
Construction and Demolition Waste	Percentage Benchmark	22B	Percentage Benchmark	1	1	1	1	Waste Contractor	90% construction and demolition waste diverted from landfill
Total				12	11	11	11		

Land Use & Ecology				6					
Ecological Value	To reward projects that improve the ecological value of their site.	23.0	Endangered, Threatened or Vulnerable Species	-	Complies	Complies	Complies	Client / Aspire / Architect	No protected, vulnerable or endangered species present prior to purchase.
		23.1	Ecological Value	3	1	1	1	Landscape Architect / Ecologist	Native vegetation on landscaped areas. Ecological value to be improved compared to previous site.
Sustainable Sites	To reward projects that choose to develop sites that have limited ecological value, re-use previously developed land and remediate contaminate land.	24.0	Conditional Requirement	-	Complies	Complies	Complies	Landscape Architect / Ecologist	Site must not be built on land that includes old growth forest, prime agricultural land, wetland of 'high national importance', or impact on 'matters of national significance'
		24.1	Reuse of Land	1	1	1	1	Client / Aspire / Architect	Requires 75% of site to be previously developed land.
		24.2	Contamination and Hazardous Materials	1.0	1	1	1	Demolition Contractor	One point achieved if land was contaminated and remedial works carried out.
Heat Island Effect	To encourage and recognise projects that reduce the contribution of the project site to the heat island effect.	25.0	Heat Island Effect Reduction	1	1	1	1	Landscape Architect / Head Contractor	75% of site to meet criteria regarding green roofs, vegetation, light colour roofs and concrete, shading structures etc.
Total				6	4	4	4		

Emissions				5					
Stormwater	To reward projects that minimise peak stormwater flows and reduce pollutants entering public sewer infrastructure.	26.1	Stormwater Peak Discharge	1	1	1	1	Civil / Hydraulic	To be incorporated through WSUD and appropriate rainwater storage and treatment. Civil consultant to advise.
		26.2	Stormwater Pollution Targets	1	1	1	1	Civil / Hydraulic	Achieved when stormwater pollution target reductions are met.
Light Pollution	To reward projects that minimise light pollution.	27.0	Light Pollution to Neighbouring Bodies	-	Complies	Complies	Complies	Architect / Electrical	Outdoor lighting will comply with AS4282:1997 control of the obtrusive effects of outdoor lighting.
		27.1	Light Pollution to Night Sky	1	1	1	1	Client / Electrical / Architect	Control of external light sources - upward light output ratio < 5%
Microbial Control	To recognise projects that implement systems to minimise the impacts associated with harmful microbes in building systems.	28.0	Legionella Impacts from Cooling Systems	1	1	1	1	Mechanical / Aspire	One point achieved for waterless heat rejection.
Refrigerant Impacts	To encourage operational practices that minimise the environmental impacts of refrigeration equipment.	29.0	Refrigerants Impacts	1.0	0	0	0	Mechanical	Natural refrigerant / 4th generation refrigerant chillers. Mechanical to investigate. Can have energy efficiency benefits.
Total				5	4	4	4		

Innovation				10					
		Inn1	On-Site Renewables		0	0	0		TBC during detailed design phase
		Inn2	Stormwater Pollution Targets		1	1	1		TBC during detailed design phase
		Inn3	Improving on Green Star Benchmarks - Ultra Low VOCs		1	1	1		TBC during detailed design phase
		Inn4	Mattresses		0	0	1		TBC during detailed design phase
		Inn5	Financial Transparency		1	1	1		TBC during detailed design phase
		Inn6	Digital Infrastructure		1	0	0		TBC during detailed design phase
		Inn7	Reconciliation Action Plan		0	0	1		TBC during detailed design phase
		Inn8	Marketing Excellence		0	0	0		TBC during detailed design phase
		Inn9	High performance site offices		1	1	1		TBC during detailed design phase
		Inn10	Innovation Challenge - Local Services & Skilled Labour		1	1	1		TBC during detailed design phase
Total				0	6	5	7		

TOTALS	61	62	65
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