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Consultant Advice Notice

Project:	441 William Street, Perth	**Project No.**	1020186
Subject:	Green Star Strategy	**Doc No.**	ESD-001
Author:	Mathuran Marianayagam	**Date:**	13 December 2018
Attention:	Davor Nikolic – Architectural Online	**Revision:**	-

Dear Davor,

This consultant's advice is prepared to provide a summary review of the Environmental Sustainability Design (ESD) report of the above proposed development dated October 2018 and outline how the development will achieve the equivalent benchmark of a 5 Star Green Star Design & As-Built v1.2 rating.

The proposed development is a 5-storey hotel facility with retail shops, cafes and 30 no. hotel suites. The City of Vincent requires a preliminary sustainable design assessment report prepared for the new non-residential development to include:

- A description of the sustainability strategies and initiatives that will be targeted by the development;
- A Green Star score card showing the number of points that can be achieved by the targeted strategies and initiatives;
- Confirmation that all targeted strategies and initiatives have been integrated into the project design documentation submitted with the DA; and
- A statement confirming the DA applicant's intent to retain sufficient sustainability strategies and initiatives to the working drawing stage to ensure that the final design is capable of achieving a 5 Star Green Star rating.

It is noted that the ESD report prepared and issued for the development is assessed against common Sustainability Design Assessment in the Planning Process principles, primarily developed by the local governments of Victoria. However, as per the City of Vincent requirements, the ESD report is assessed against Green Star Design & As Built v1.2, the latest rating tool available.

Review Summary

The sustainability measures proposed and included in the design documents and ESD report appears to achieve 51 points when assessed against the Green Star Design & As Built v1.2 rating system. We have recommended the following additional measures so that the development can meet a 5 Star Green Star equivalency rating.

- Active involvement of Green Star Accredited Professional (GSAP) in the project;
- BMS system to monitor and record energy and water consumptions;
- Involvement of ISO 14000 accredited builder / head contractor;
- Well-lit spaces that provide high degree of visual comfort via surface illuminance;
- No engineering wood use or low formaldehyde engineering wood;
- Solar hot water system for domestic hot water usage;
- Specifying products with EPDs (Environmental Product Declaration);
- Minimum 90% diversion of construction wastes from landfill; and
- Minimising the light pollution to night sky.

Together with the above additional sustainability initiatives, the proposed development is expected to be capable of achieving 5 Star Green Star rating with a total point of 61. Please refer to the Appendix B of this CAN which provides the Green Star points that are targeted for the development.

We trust the above is succinct and sufficient for your purposes, however should you have any questions please do not hesitate to contact us.

Kind Regards,

For and on behalf of Cundall,

Mathuran Marianayagam

Principal ESD Consultant / Green Star Accredited Professional (GSAP)
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Appendix A – Applicant Statement – Sustainability Strategies

Please see overleaf.

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Ref: Applicant Statement
Date: 12 December 2018

City of Vincent
244 Vincent Street (cnr Loftus Street)
Leederville, WA 6007

Dear Kate,

RE: **441 William St, Perth WA 6000 – Development Application**
Applicant Statement – Sustainability Strategies

This letter confirms that, Architectural Online as the Applicant of the above-mentioned project, I confirm my intent to retain sufficient sustainability strategies / initiatives to the working drawing stage to ensure that the final design is capable of achieving the global warming and water benchmarks set out in the City's Built Form Policy.

I trust the foregoing is adequate for your purposes, but should you have any questions please do not hesitate to contact me.

Yours sincerely
For and on behalf of Architectural Online

Davor Nikolic
Architectural Online
Director
Tel: 0402 856 468
Email: info@architecturalonline.com.au

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Appendix B – Green Star Design & As Built Scorecard

Please see overleaf.

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Green Star - Design & As Built Scorecard v1.2

Project: 441 William St, Perth
Targeted rating: 5 Stars
Date: December-2018

	POINTS TARGETED IN ESD REPORT	ADDITIONAL POINTS RECOMMENDED
Points	51	10
Cumulative	51	61
Rating	4 Star	5 Star

CATEGORY / CREDIT	AIM OF THE CREDIT / SELECTION	CODE	CREDIT CRITERIA	COMPLIANCE REQUIREMENTS	POINTS AVAILABLE	POINTS TARGETED IN ESD REPORT	ADDITIONAL POINTS RECOMMENDED	RESPONSIBILITY	Review Comments
Management									
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.	1.1	Accredited Professional	Engage GSAP through all stages of project from schematic design to certification.	1	0	1	ESD Consultant	Cundall can provide ESD consultancy services for the project.
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	Document environmental performance targets for project (through a design intent report or similar).	-	Complies		ESD Consultant	ESD report to include design intent or owner's project requirements.
		2.1	Services and Maintainability Review	Services and maintainability review prior to construction, led by contractor and ICA or owner's rep with input from the design team.	1	0		N/A	Not targeted.
		2.2	Building Commissioning	Required to: - Include specific commissioning requirements in contracts; - Develop a commissioning plan; and - Demonstrate commissioning was carried out in accordance with the plan and spec requirements. - Air tightness testing	1	0		N/A	Not targeted.
		2.3	Building Systems Tuning	Commitment from the building owner to building systems tuning, 12 months post PC tuning, based on BMS data and occupancy surveys, also requires: - Building tuning plan to be prepare in accordance with standards; - Building tuning team to be formed; and - Organisations have been engaged to tune nominated systems.	1	0		N/A	Not targeted.
		2.4	Independent Commissioning Agent	ICA to be engaged throughout design and construction.	1	0		N/A	Not targeted.
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	Climate adaptation risk assessment to be undertaken and strategies incorporated to mitigate risks.	2	0		N/A	Not targeted.
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 Operations and Maintenance Information	O&Ms and Building Log Book (reference directory on where to find building information, regularly updated) generated in accordance with standards. Must also include details regarding updating O&Ms.	1	1		Services Consultants	Although the requirements for Building User Guide is included in the ESD report, the requirements for the Building Log Book is not clearly mentioned; Recommended to add additional specification clauses.
		4.2	Building User Information	Building user information to be provided. Must be digital and editable by FM to stay up to date. Available in signage or information kiosks in building foyer					
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	Building owner and tenant jointly agree and commit to targets through formal commitments to each other through a 'Best Practice Lease' Agreement, or similar formal agreement, or a memorandum of understanding. Targets must include at least 2 of: GHG, Water, Waste, IEQ.	1	0		N/A	Not targeted.
		5.2	End of Life Waste Performance	Building owner and tenant demonstrate a commitment to best practice 'make good' clauses in the lease, which must follow industry recognised standards or guidelines.	1	0		N/A	Not targeted.
Metering and Monitoring	To recognise the implementation of effective energy and water metering and monitoring systems.	6.0	Metering	Conditional - metering provided for all major uses and sources of water and energy.	-	0	Likely to Comply	Electrical Consultant	The credit requirements can be easily met via appropriate electrical design.
		6.1	Monitoring Systems	System (BMS) present to monitor and record data, with the ability to clearly present to the user. Data integrity to be included.	1	0	1	Electrical Consultant	Credit requirements are relatively easy to meet.
Construction Environmental Management	To reward projects that use best practice formal environmental management procedures during construction.	7.0	Environmental Management Plan	Conditional - Comprehensive EMP in place complying with NSW EMS guidelines.	-	Likely to Comply	Likely to Comply	Builder	Owner to select Builder / Head Contractor who are capable of implementing the EMS guidelines.
		7.1	Formalised Environmental Management System	Contractor has ISO-14001 certification.	1	0	1	Builder	Specifications can include requirements for ISO 14000 accreditation.
Operational Waste	To recognise projects that implement waste management plans that facilitate the re-use, upcycling, or conversion of waste into energy and stewardship of items to reduce the quantity of outgoing waste	8.1	Waste in Operations	Facilities in place to separate waste streams which meets best practice access requirements. Min: Landfill, paper/cardboard, Glass, Plastic, 1 other.	1	1		Owner	The ESD report recommends operational waste management guidelines and adequate facilities to help implement such measures.
Total					**13**	**2**	**3**		
Indoor Environment Quality									
Indoor Air Quality	To recognise projects that provide high air quality to occupants.	9.1	Ventilation System Attributes	Ductwork to be cleaned or kept clean and taped up prior to occupancy - Maintenance access to be provided to both sides of moisture and debris catching components - Intakes located away from pollutants in accordance with ASHRAE Standard 62:2013	1	0		N/A	Not targeted.
		9.2	Provision of Outside Air	Mechanically air conditioned areas: - 1 point for 50% greater outdoor air than AS1668.2:2012 OR CO_2 concentrations kept below 800ppm - 2 points for 100% greater outdoor air than AS1668.2:2012 OR CO_2 concentrations kept below 700ppm Naturally Ventilated areas: - 2 points where requirements of AS1668.4-2012 are met.	2	0		N/A	Not targeted.
		9.3	Exhaust or Elimination of Pollutants	Separate exhaust of kitchen pollutants. All printers to be low emissions	1	0		N/A	Not targeted.
Acoustic Comfort	To reward projects that provide appropriate and comfortable acoustic conditions for occupants.	10.1	Internal Noise Levels	Appropriate noise levels (outside and building systems) not more than 5dB above satisfactory levels outlined in AS2107:2000 (10dB for nat vent buildings). There is no lower limit on sound levels. Measurements required.	1	1		Architect / Acoustician	ESD report calls for appropriate noise levels and noise transfer restrictions
		10.2	Reverberation	Reverberation time in the centre management office and any other occupied spaces must be below the maximum stated in the 'Recommended Reverberation Time' provided in Table 1 of AS/NZ 2107:2000. Where note 3 of AS/NZ 2107:2000 applies and requires that reverberation times be minimised as far as practical, acoustic absorption should be installed in the noise sensitive space. The amount of acoustic absorption must be equivalent to at least 50% of the area in the space. Tenant areas will be treated by requirements included in the "tenant fitout guide".	1	1		Architect / Acoustician	ESD report calls for appropriate noise levels and noise transfer restrictions

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Green Star - Design & As Built Scorecard v1.2

Project: 441 William St, Perth
Targeted rating: 5 Stars
Date: December-2018

	POINTS TARGETED IN ESD REPORT	ADDITIONAL POINTS RECOMMENDED
Points	51	10
Cumulative	51	61
Rating	4 Star	5 Star

CATEGORY / CREDIT	AIM OF THE CREDIT / SELECTION	CODE	CREDIT CRITERIA	COMPLIANCE REQUIREMENTS	POINTS AVAILABLE	POINTS TARGETED IN ESD REPORT	ADDITIONAL POINTS RECOMMENDED	RESPONSIBILITY	Review Comments
		10.3	Acoustic Separation	Acoustic separation requirements to minimise cross-talk between rooms and between rooms and open areas. The partition between the spaces should be constructed to achieve a weighted sound reduction index (Rw) of at least 45. To be considered between all occupied spaces (tenancies, centre management, parking office,).	1	1		Architect / Acoustician	ESD report calls for appropriate noise levels and noise transfer restrictions
Lighting Comfort	To encourage and recognise well-lit spaces that provide a high degree of comfort to users.	11.0	Minimum Lighting Comfort	High frequency ballasts or LED and minimum colour rendering index of 80	-	Complies		Electrical Designer	ESD report calls for LED or T5 high frequency ballasts
		11.1	General Illuminance and Glare Reduction	General lighting levels to meet maintained illuminance in AS1680 series (modelling representative areas or measurements, uses area weighted average, not points). Glare from lamps to be reduced through either: >> all lamps having diffusers, baffles etc.; >> Lighting system compliant with luminaire selection system in section 8.3.4 of AS1680.1-2006; OR >> Unified Glare Rating on a representative floor less than Table 8.2 of AS1680.1-2006	1	0		N/A	Not targeted.
		11.2	Surface Illuminance	All regularly occupied spaces including mall, centre management and any other occupied spaces must be modelled to show that: * The average ceiling luminance (excluding light fixtures) does not exceed 0.5 kcd/m² and the maximum luminance at any point on the ceiling does not exceed 1.5 kcd/m²; * The ceiling area has an average surface illuminance of at least 30% of the lighting levels on the working plane; and * In rooms less than 100m² (eg centre management, security), or in rooms where more than 20% of workstations are located within 3m of walls, the wall area above the working plane has an average surface illuminance of at least 50% of the lighting levels on the working plane. The illuminance values for ceilings, walls, and floors must be calculated in accordance with Appendix B of AS/NZS 1680.1:2006. Tenant areas will be treated by requirements included in the "tenant fitout guide".	1	0	1	Electrical Designer	The credit requirements can be included in the lighting design.
		11.3	Localised Lighting Control	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. Provide task lighting to the centre management and car paking offices to comply. The background lighting could be reduced to a lower lighting level since we have task lighting. Tenant areas will be treated by requirements included in the "tenant fitout guide".	1	1		Electrical Designer	ESD report includes requirements for lighting controls.
Visual Comfort	To recognise the delivery of well-lit spaces that provide high levels of visual comfort to building occupants.	12.0	Glare Reduction	Provide blinds or external shading to control glare.	-	Likely to Comply		Architect	Adequate shading provisions are to be included in the building design
		12.1	Daylight	40% of nominated area received at least 2%DF (60% 2 points)	2	2		Architect	ESD report calls for maximizing natural light provisions via design.
		12.2	Views	60% of nominated area has access to high quality internal or external views (within 8m direct line of sight).	1	1		Architect	The design documents appear to indicate adequate views to outside.
Indoor Pollutants	To recognise projects that safeguard occupant health through the reduction in internal air pollutant levels.	13.1	Paints, Adhesives, Sealants and Carpets	95% of Paints, Adhesives, Sealants, Carpets to be low VOC	1	1		Architect / Builder	ESD report calls for low VOC products to be used.
		13.2	Engineered Wood Products	95% of engineered wood to be low Formaldehyde, or no new engineered wood is installed.	1	0	1	Architect / Builder	Requirements to meet the credit criteria can be included in the specifications.
Thermal Comfort	To encourage and recognise projects that achieve high levels of thermal comfort.	14.1	Thermal Comfort	Mech vent - High levels of thermal comfort (PMV +/-1) achieved for 95% of the nominated area, 98% of the year. Nat Vent - Internal spaced are within 80% of Acceptability Limit of ASHRAE Standard 55-2013 in accordance with 14.1.1	1	1		Architect / Builder	Based on the improved building envelope thermal performances for roof, wall & glazing systems, a point for thermal comfort is anticipated.
		14.2	Advanced Thermal Comfort	High levels of thermal comfort (PMV +/-0.5) achieved for 95% of the nominated area, 98% of the year.	N/A	0		N/A	Not targeted.
Total					**16**	**9**	**2**		
Energy									
Greenhouse Gas Emissions	A. Prescriptive Pathway	15A.0	Conditional Requirement: Prescriptive Pathway	The thermal performance of the development to exceed the DTS requirements of BCA NCC Parts J1 and J2 by at least 5%.	-	Complies		Architect / Builder	ESD report includes requirements for better thermal performance.
		15A.1	Building Envelope	The thermal performance of the development to exceed the DTS requirements of BCA NCC Parts J1 and J2 by at least 15%.	1	1		Architect / Builder	ESD report includes requirements for better thermal performance.
		15A.2	Glazing	The total energy used for each orientation and each storey is not greater than 85% of the total allowance of BCA NCC Part J2	1	1		Architect / Builder	ESD report includes requirements for better glazing performance.
		15A.3	Lighting	Illumination power density is 30% less than the maximum illumination power densities defined in Table J6.2a; Automated lighting control systems for 95% of nominated Area;	1	1		Electrical Consultant	ESD report includes requirements for improved lighting power density.
		15A.4	Ventilation and Air-Conditioning	Fan motor power and pump power, is at least 15% less that the maximum fan motor power and pump power defined in Tables J5.2; energy efficiency ratio for packaged air conditioning equipment and refrigerant chillers is at least 15% higher than that specified	1	1		Mechanical Consultant	ESD report includes requirements for higher efficiency air conditioning system.
		15A.5	Domestic Hot Water System	Domestic hot water systems are powered by one of the following heat sources; Renewable Energy (which may include electric/gas boost); Natural Gas; Electric heat pump (minimum COP 3.5 under design conditions); or Waste heat or heat recovered from another process.	1	0	1	Mechanical Consultant	Solar hot water system can be included in the deign to meet the credit criteria.
		15A.6	Accredited Green Power		5	0		N/A	Not targeted.
Peak Electricity Demand Reduction	Performance Pathway	16B	Performance Pathway - Reference Building	Achieve a peak demand reduction of 20-30% compared to a reference building model.	2	2		Electrical Consultant	The ESD report recommends the use of photovoltaic (PV) system. In addition, energy efficient appliances are also proposed. Hence, It is anticipated that these measures will help achieve the peak demand reduction of 30%.
Total					**12**	**6**	**1**		

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Green Star - Design & As Built Scorecard v1.2

Project: 441 William St, Perth
Targeted rating: 5 Stars
Date: December-2018

	POINTS TARGETED IN ESD REPORT	ADDITIONAL POINTS RECOMMENDED
Points	51	10
Cumulative	51	61
Rating	4 Star	5 Star

CATEGORY / CREDIT	AIM OF THE CREDIT / SELECTION	CODE	CREDIT CRITERIA	COMPLIANCE REQUIREMENTS	POINTS AVAILABLE	POINTS TARGETED IN ESD REPORT	ADDITIONAL POINTS RECOMMENDED	RESPONSIBILITY	Review Comments
Transport									
Sustainable Transport	Performance Pathway	17A.1	Modelled pathway	Points are available where projects provide access to sustainable transport infrastructure which decreases greenhouse gas emissions from transport, decreases mental and social impacts of commuting, and encourages the uptake of healthier transport options by building occupants.	10	10		Architect / ESD Consultant	The project is located in a dense area with a 97 walk score and 92 transit score. In addition, secure bicycle parking facilities are also recommended. Based on these details, the development is expected to achieve 10 points.
Total					**10**	**10**	**0**		
Water									
Potable Water	Performance Pathway	18A.1	Potable Water - Performance Pathway	Up to 12 points awarded for incremental reductions in potable water demand compared to a reference building up to 100% reduction.	12	6		Architect / ESD Consultant	ESD report includes requirements for higher water efficiency measures such as higher WELS rated fittings, rainwater harvesting system etc. Based on these measures, the development is expected to achieve 6 points.
Total					**12**	**6**	**0**		
Materials									
Life Cycle Impacts	Performance Pathway - Life Cycle Assessment	19A.1	Comparative Life Cycle Assessment	Conduct LCA to demonstrate improvement against benchmark building.	6	0		N/A	Not targeted.
		19A.2	Additional Life Cycle Impact Reporting	Report on an additional impact categories.	1	0		N/A	Not targeted.
		19.B.1	Concrete	Portland cement content is reduced by 40%	3	2		Architect / Structural Designer	ESD report includes requirements of the credit.
		19.B.2	Steel	Reduction in the mass of steel reinforcement used when compared to standard practice	1	1		Architect / Structural Designer	ESD report includes requirements of the credit.
		19.B.3	Building Reuse	Not applicable for new projects	0	0		N/A	Not targeted.
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	95% of steel (by mass) is sourced from a responsible steel maker AND at least 60% of the fabricated structural steelwork is supplied by a steel fabricator/steel contractor accredited to the Environmental Sustainability Charter of the ASI	1	1		Architect / Structural Designer	ESD report includes requirements of the credit.
		20.2	Timber Products	95% (by cost) of timber is FSC, PEFC or reused. If less than 0.1% of total cost credit will be N/A	1	1		Architect	ESD report includes requirements of the credit.
		20.3	Permanent Formwork, Pipes, Flooring, Blinds and Cables	90% (by cost) of all cables, pipes, floors and blinds meet best practice PVC guidelines OR do not contain PVC (and have EPDs).	1	1		Architect / Services Consultants	ESD report includes requirements of the credit.
Sustainable Products	To encourage sustainability and transparency in product specification.	21.1	Product Transparency and Sustainability	Up to 3 points available for 3%, 6% or 9% of products by cost being sourced as reused or having recycled content, EPDs, third-party certifications or product stewardship programs.	3	0	2	Architect / ESD Consultant / Builder	Specifying products with EPDs are recommended for the project. Project team is expected to identify products that would meet the credit requirement and include them in the design and tender documents.
Construction and Demolition Waste	To reward projects that reduce construction waste going to landfill by reusing or recycling building materials	22B	Percentage Benchmark	Divert 90% of waste from landfill.	1	0	1	Architect / Builder	ESD report only requires minimum 70% of construction wastes to be diverted from landfills. 90% can be targeted.
Total					**18**	**6**	**3**		
Land Use & Ecology									
Ecological Value	To reward projects that improve the ecological value of their site.	23.0	Endangered, Threatened or Vulnerable Species	Conditional - Demonstrate that no species or ecological communities were present on site which have the status: critically endangered, endangered or vulnerable.	-	Complies		Architect / Builder	ESD report includes requirements of the credit.
		23.1	Ecological Value	Points awarded for improving the site ecology (by site area) e.g. replacing hardscape with native vegetation. Uses GBCA calculator	3	2		Architect / Builder	ESD report includes requirements of the credit. It is anticipated that 2 points can be achieved with the landscape measures proposed.
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	Site at purchase must not contain: - Old growth forest; - Prime agricultural land; - Wetland of high importance (unless wetland protection measures in place); - Matters of national significance as per Environmental Protection and Biodiversity Conservation Act (1999).	-	Complies		N/A	The location of the project site meets the credit requirements.
		24.1	Reuse of Land	Over 75% of site previously developed.	1	0		N/A	Not targeted. Undeveloped land.
		24.2	Contamination and Hazardous Materials	Significant contamination exists at time of purchase and is remediated in accordance with a best practice remediation strategy.	1	1		Architect / Builder	ESD report includes requirements of the credit.
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	75% of site area has building or landscape that reduce the heat island effect e.g.: - Vegetation; - Green roof; - High Surface Reflectance Index (SRI) roof or hardscape; - Hardscape shaded by vegetation; OR - Water bodies.	1	1		Architect	ESD report includes requirements of the credit.
Total					**6**	**4**	**0**		
Emissions									
Stormwater	To reward projects that minimise peak stormwater flows and reduce pollutants entering public sewer infrastructure.	26.1	Reduced Peak Discharge	Post development peak discharge not to exceed pre-development peak discharge based on the Average Recurrence Interval.	1	1		Civil & Structural Consultant	ESD report includes requirements of the credit; measures include re-use of storm water and pollutant reducing drainage systems.
		26.2	Reduced Pollution Targets	Discharge meets pollution reduction targets in column A of GBCA table	1	1		Civil & Structural Consultant	ESD report includes requirements of the credit.
Light Pollution	To reward projects that minimise light pollution.	27.0	Light Pollution to Neighbouring Bodies	Credit conditional - Site must comply with AS4282 Control of the Obtrusive Effects of Outdoor Lighting	-	Complies		Electrical Consultant	The credit requirements can be included in the design.
		27.1	Light Pollution to Night Sky	Either: - No luminaire to have an upward light output ratio above 5%; OR - Direct illuminance no greater than 0.5Lux at site boundary and 0.1 Lux beyond highest point of building into night sky.	1		1	Electrical Consultant	The credit requirements can be included in the design.

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Points	51	10
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CATEGORY / CREDIT	AIM OF THE CREDIT / SELECTION	CODE	CREDIT CRITERIA	COMPLIANCE REQUIREMENTS	POINTS AVAILABLE	POINTS TARGETED IN ESD REPORT	ADDITIONAL POINTS RECOMMENDED	RESPONSIBILITY	Review Comments
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	Either: - Building is naturally ventilated; - Heat rejection is waterless; OR - Heat rejection is water based but includes measures for Legionella control (System meets AS/NSZ 3666.1:2011, no water stagnation, water never between 20 and 50degC while still, no aerosol spray)	1	1		Mechanical Consultant	Waterless heat rejection system.
Refrigerant Impacts	To encourage operational practices that minimise the environmental impacts of refrigeration equipment.	29.0	Refrigerants Impacts	Either: - All refrigerants have ODP of 0 and GWP below 10 - Weighted impact of refrigerants on ODP and GWP has Total system Direct environmental impact below 15 (refer TM for calculation); OR - Weighted impact of refrigerants on ODP and GWP has Total system Direct environmental impact between 15 and 30 AND a leak detection system is in place	1	1		Mechanical Consultant	ESD report includes requirements of the credit.
Total					**5**	**4**	**1**		
Innovation									
Innovative Technology or Process	The project meets the aims of an existing credit using a technology or process that is considered innovative in Australia or the world.	30A	Innovative Technology or Process	Project achieves an existing credit using a technology or process that is considered innovative in Australia or worldwide	10	4		Architect / Builder / Services Consultants	Passive Design Strategies - The ESD report indicates that passive design strategies such as extensive sun shadings have been used in the design to control solar radiation during summer months. It is anticipated that all living areas are not exposed to sun penetration. Dematerialisation - The ESD report recommends strategies that finishes shall be raw and exposed where possible to reduce the embodies energy of the building. 6 Star energy rating - The ESD report indicates that the development will meet 6-Star energy rating; while it's not clear which rating it refers to, it is anticipated that NABERS energy rating is considered. Clothes drying - Single central facility to service all hotel suites.
Market Transformation	The project has undertaken a sustainability initiative that substantially contributes to the broader market transformation towards sustainable development in Australia or in the world.	30B	Market Transformation	The project has undertaken a sustainability initiative that substantially contributes to the broader market transformation towards sustainable development in Australia or in the world.					
Improving on Green Star Benchmarks	The project has achieved full points in a Green Star credit and demonstrates a substantial improvement on the benchmark required to achieve full points.	30C	Improving on Green Star Benchmarks	The project has exceeded the benchmark of an existing credit, and demonstrates substantial improvement over the benchmark.					
Innovation Challenge	Where the project addresses an sustainability issue not included within any of the Credits in the existing Green Star rating tools.	30D	Innovation Challenge	Where the project addresses an sustainability issue not included within any of the Credits in the existing Green Star rating tools.					
Global Sustainability	Project teams may adopt an approved credit from a Global Green Building Rating tool that addresses a sustainability issue that is currently outside the scope of this Green Star rating tools.	30E	Global Sustainability	Project complies with a credit from a different rating tool (LEED, BREAM etc.)					
Total					**10**	**4**	**0**		

TOTAL	POINTS AVAILABLE	4-STAR POINTS	5-STAR POINTS
	110	**51**	**61**