



NEW BUILDING INNOVATION REGISTER 2016

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IMPORTANT NOTE TO REGISTERED PROJECTS REGARDING THIS REGISTER:

This innovation register of innovation points awarded has been drawn up by the Green Building Council South Africa (GBCSA) and is intended for use by project teams, contractors and interested parties for innovation purposes only.

Please note that the initiatives listed below have been awarded for innovation points based on specific circumstances on each project, as well as the manner that these circumstances have been presented to the GBCSA for assessment. The GBCSA in no way guarantees that where initiatives have been awarded in the past, these will be awarded again for future projects. Each innovation submission is reviewed in the context of the specific project and documentation submitted.

Any single initiative under INN-1 will only be awarded to ten projects under the same rating tool before no longer being available for innovation points under the Green Star rating tool for buildings of that type-i.e. where on the table below you see under the column 'number of times awarded' that it is the 10th time that it has been awarded for a building of that type, the same type of initiative will not be able to achieve points in the same building type. Where the number for a type of building has not yet reached 10, this initiative may still be targeted for innovation points under that same building type.

PLEASE NOTE THE FOLLOWING:

'number' of times per Innovation:

INN-1 (both parts) only - projects can be the 'first' or 'early adopter' for the first 10 (ten) projects per Tool (Office v1, Retail v1, PEB v1, MUR v1, Office v1.1 & Interiors v1 & EBP v1).

INN-2: Exceeding Green Star Benchmarks

There is no limit on the number of times different projects, within each tool, can submit the same innovation under INN-2 (e.g. zero potable water usage under WAT-1).

INN-3: Environmental Initiatives

There is no limit on the number of times different projects, within each tool, can submit the same innovation under INN-3 (e.g. Stairs for Office submission)."

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-1 Innovation Strategies and Technologies						
Innovative/Green Façade Initiatives						
<p>Argon filled double skin glazed façade: The system comprises of three different types of glass that are mounted into a single unit, and installed from the inside of the building. The double skin façade with an argon insulate double glazed inner skin ensures thermal comfort. The environmental benefits are estimated at 168 802 Co2 p/a. The large quantities of argon required for the project resulted in Glass South Africa opening an argon gas operation in Springs; further creating jobs. Previously argon filled units were only available as an imported product; the project has since allowed for this product to be manifested locally.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Closed cavity utilised façade: The project has developed a utilised, closed-cavity double skin façade with a dehumidified air supply which is considered a first in South Africa, which has an environmental benefit of 751 010 CO2e.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Façade designed for Disassembly: The project is the first tall building in South Africa for which the façade has been specifically designed to be disassembled and reused by a third party. The project team has ensured environmental benefits by designing the façade for disassembly and reuse, these are: saving materials and embodied carbon.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Automatic light redirecting blinds: The project team has developed and implemented automated blinds that track the solar incidence of sunlight on each façade and automatically adjust the blinds to omit direct glare from the office space. This technology was pioneered in South Africa specifically for the this project transforming the market.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative contributes significantly towards market transformation in the South African property and construction industry (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Fritted glass and Solar Controlled Louvers: The system comprises of vertically-mounted shading fins, which are made of glass and have a 50% frit. The frit is grey in colour, so as to reduce glare. The first pass control is achieved through sun-tracking based on date and time. In the event of cloud cover, low daylight levels will trigger the opening of the fins to improve daylight increases.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>The 'smart window' E-glass technology This uses a combination of spectrally-selective optical structures and Nano-particle assisted waveguides. These structures include micro-engineered phase elements and layers of nanoparticles deposited between the panes both designed to deflect infrared light to the window edges, where it is picked up by a photovoltaic cell which converts it to electricity. The technology is based on the integration of micro and Nano engineered structures and materials to provide shatterproof, extremely stable clear glass panels that not only block the UV and IR radiations, but also harvest them and convert them to electricity via PV panels cells placed within the window frames.</p>	Inn-1	2	2	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in the world (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>A double skin facade(fabric sun control screen filled Cavity) This is a system consisting of two glass skins with an intermediate ventilated cavity. The double skin facade is a European trend mostly driven by increased desire for transparency and access to daylight with highly glazed buildings, the need of improving the indoor environment, improved acoustic insulation, protection of shading devices and the reduction of energy use during the occupation stage of a building.</p>	Inn-1	2	1	Awarded	2x OFF v1 & v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-1 Innovation Strategies and Technologies						
Sustainable Procurement Initiatives						
<p>Private Public Partnership model: The project implemented a contract between a public sector institution and a private party (PPP), in which the private party, single tenant; assumes substantial financial, technical and operational risk in the design, financing, building and operation of a project for a period between 5-30 years. The PPP agreement requires that the consortium operates and facilitates the operational targets of the building for 25 years, this will ensure that the energy efficiency of the building is kept as a main priority.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Low VOC Paints-Market Transformation						
<p>Market Transformation-Low VOC paints: The design team has been instrumental in driving market transformation by significantly influencing the South African paint market in terms of the supply of low VOC paints.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative contributes significantly towards market transformation in the South African property and construction industry (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Research & Studies-Green Features/Initiatives						
<p>Productivity Study: A study will be conducted to assess building occupant perception of workplace wellbeing and productivity in relation to validated work productivity.</p>	Inn-1	2	1	Awarded	2x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative contributes significantly towards market transformation in the South African property and construction industry (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Post Occupancy Evaluation (POE): The project indicated commitment to conducting a Post Occupancy Evaluation (POE) on the building upon completion. POE are systematic investigations of building, once they have been occupied for some time, to evaluate how the building users experience and perceive the building and to examine actual building operational performance and productivity.</p>	Inn-1	2	1	Awarded	2x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Renewable Energy Initiatives						
<p>Innovative Funding-For renewable energy: A joint venture which is a first of its kind has been undertaken with the national utility for the provision of large scale building integrated renewable energy. Market transformation in pioneering innovative funding mechanisms for renewable energy.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Energy reducing renewal technology where glass facades require an integrated approach where the window pane as an integrated product has clear visible light and generates electricity in tandem, acting as a photovoltaic cell. The results of the research will be published and could become the strategic model for the future implementation of the cost effective PV panels in Southern Africa. The research will utilize data confirmed by the Building Management System (BMS).</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Combined Cooling heat and power (CCHP Plant): The use of the combined Heat and Power plant generate significant energy. Benefits includes significant reduction of CO2.</p>	Inn-1	2	1	Awarded	3x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

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INN-1 Innovation Strategies and Technologies						
Waste Water Re-use & Treatment Initiatives						
<p>Waste water and purification treatment system: The project installed a bespoke Waste Water Treatment and Purification System (WWTPS) which recycles all waste water effluent from the building and treats this through a bespoke (world first) WWTPS to potable water standards which is re-used on site as potable water for the tenants.</p>	Inn-1	2	2	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in the world (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Black Water Treatment System: The Blackwater treatment system is a first in a South African urban environment and results in water savings and reduction of discharge to the sewer.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Blackwater treatment plant & re-used for HVAC cooling: The project has an on-site Blackwater treatment plant, where the treated water is re-used for HVAC cooling tower make-up water supply.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Re-use of Treated Blackwater in HVAC: This is considered the 1st office development to treat black water and re-use it for HVAC. The project substantially contributes to broader market transformation toward further sustainable development in South Africa, noting that the owner and tenants of the building are government and as a result are a large influential figure in the South African economy and property industry.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Treated effluent water usage for toilet and urinal flushing and cooling towers make up water in Office Buildings: Municipal supplied treated effluent water used for irrigation, toilet and urinal flushing as well as cooling tower make up water.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office V1.1 1x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Rainwater/Stormwater Harvesting & Treatment						
<p>Stormwater treatment system design: The system is a first for a South Africa as it consists of a combination of horizontally and vertically configured aerobic trickle and anaerobic filter trays as opposed to the 'normal' constructed reed-bed type of system. The proposed initiative may substantially contribute to the broader market transformation towards sustainable development with regards to storwater quality.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

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INN-1 Innovation Strategies and Technologies						
Internal Environment Cooling & Ventilation Initiatives						
<p>Thermally Activated Building System (TABS): By virtue of it being the first commercial building to take advantage of the TABS technology, the development will be instrumental in changing market perception of TABS, thereby making it become not only a viable HVAC alternative for future projects but an alternative that is also largely climatically responsive system with a very low comparative energy impact.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>The sea water cooling system is a sustainable design initiative which is the first in South Africa for commercial/office development. A sea water exchange system is utilised to reduce the buildings water consumption.</p>	Inn-1	2	1	Awarded	2x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Sea Water cooling: Chilled and heating hot water is supplied to the building via the precinct central plant. A sea water heat exchange system is utilised at the central plant. This reduces the precincts water consumption by not using cooling towers and increase energy efficiency by increasing the chiller and heat pump coefficient of performance. Other benefits includes elimination of risk of Legionella.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 1x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Under floor displacement ventilation system: The under floor air displacement (UFAD) HVAC system serves to the open plan section of the office. Air is supplied to a floor void from air handling units on the roof. Air is let into the space at low velocity via grilles placed in the floor. The temperature of the air is a few degrees below room temperature. As it picks up heat from occupants and equipment in the space it rises taking pollutants with it to a high level where it is extracted back to the air handling unit on the roof.</p>	Inn-1	2	1	Awarded	2x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Energy Consumption Reducing Initiatives						
<p>CCHP Plant: Energy Efficient HVAC: A fresh air system preheats the outside air with a combination of heat recovery ventilators and Solar Hot Water coils completely eliminating the ventilation energy load and resulting to less energy consumption by the HVAC equipment thereby reducing the building's carbon footprint.</p>	Inn-1	2	1	Awarded	3x OFF v1 & 0x Office V1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Gaseous Fire Suppression GWP						
<p>Gaseous Fire Suppression GWP: Market transformation of the industry as it relates to fire suppression gases achieving significantly reduced GWP values.</p>	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative contributes significantly towards market transformation in the South African property and construction industry (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-1 Innovation Strategies and Technologies						
Electric vehicles/Motorbike etc. Charging Infrastructures/Points						
<u>Recharging Infrastructure for Electric Cars:</u> 6% of the parking bays on the site have been furnished with plug points for electric vehicle charging. The charging points use electricity that has been generated from an energy centre using natural gas turbine generators.	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<u>Solar Powered Electric Car charging points:</u> Electric car charging points permanent installation of a showcase unit of solar powered electric charging station. The project team has a small fleet of electric vehicles in operation used as technology, education and awareness.	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative contributes significantly towards market transformation in the South African property and construction industry (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<u>Electric Vehicles Rechargeable facility:</u> The project is an early adaptor to incorporate the installation of rechargeable infrastructure for the operation of completely electric vehicles.	Inn-1	2	1	Awarded	4x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Green Roof Initiatives						
<u>Urban Farming Initiative:</u> The project is installing a vegetable garden on the roof top. This forms part of a precinct initiative to provide urban grown vegetables for the commercial office canteen. Furthermore, the data obtained from the garden will be fed into the online assessment tool. This data is considered to be of potential benefits through motivating other projects to implement urban farming initiatives.	Inn-1	2	1	Awarded	1x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Green Wall/Hoarding Initiatives						
<u>Green Hoarding-Mitigating dust/noise & CO2:</u> From a social perspective, green hoarding assist in mitigating the impact construction has on daily commuters who are forced to endure the discomfort that construction creates. From an environmental perspective, green hoarding assist in mitigating three construction environmental impacts: dust, noise and carbon dioxide.	Inn-1	2	1	Awarded	0x OFF v1 & 0x Office V1.1 0x CUS 0x RETAIL v1 1x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative contributes significantly towards market transformation in the South African property and construction industry (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
First Community Cycle facility						
<u>First Tall Building in SA designed as an integrated Green Building:</u> The project is the first Green Star registered project commercial building in South Africa for which a community bicycle parking facility has been provided for additional visitors (i.e. beyond those accommodated by the Green Star Office v1 credit Tra-3) and the greater community.	Inn-1	1	1	Awarded	1x OFF v1 & 0x Office v1.1 0x CUS 0x RETAIL v1 0x MURT v1 0x PEB v1	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-1 Innovation Strategies and Technologies						
LED Lighting Initiatives						
<p>100% LED Light Fitting: 100% of the building is designed to be fitted with LED luminaries. Environmental benefits include direct reduction in greenhouse gas emissions from lighting energy use.</p>	Inn-1	2	1	Awarded	<p>0_x OFF v1 & 0_x Office V1.1 0_x CUS 0_x RETAIL v1 0_x MURT v1 1_x PEB v1</p>	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>LED Lighting Initiative: The project makes use Light Emitting Diode (LED) light fittings for over 99% of the building. Over 95% of all lighting, including external fittings, makes use of LED fittings..</p>	Inn-1	2	1	Awarded	<p>3_x OFF v1 & 0_x OfficeV1.1 0_x CUS 0_x RETAIL v1 0_x MURT v1 0_x PEB v1</p>	Awarded INN-1: The GBCSA notes that this initiative is a first or early adopter in South Africa (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-2 Exceeding Green Star SA Benchmarks						
MAN-1 Accredited Professional Certifications						
<p>MAN-1 Green Star SA Accredited-Professional Team: The project is targeting an innovation point for exceeding Green Star SA Benchmarks , within the Office v1 Manual is Man-01, by certifying all members of the professional Design team as a Green Star SA Accredited Professional</p>	Inn-2	1	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
EMI-5 Watercourse Pollution						
<p>EMI-5 Watercourse Pollution Re-use or infiltration of waste water & stormwater: The project team has used natural landscaping as the watercourse pollution mitigation strategy. The sites storm water system is not connected to the municipal system. The design incorporates retention areas large enough to attenuate and infiltrate a 1-in-100 year storm.</p>	Inn-2	2	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
MAN-3 Building Tuning						
<p>Exceeding MAN-3 Building Tuning Benchmarks: This initiative aims at eliminating the negative environmental impact by ensuring that building tuning and maintenance goes beyond the mandatory period. An additional 5 years beyond the mandatory 12 month maintenance and guarantee period will ensure that building systems are operating to specification.</p>	Inn-2	2	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
ENE-5 Reduction of Peak Energy Demand						
<p>ENE-5 Reduction of Peak Energy Demand: The aim of the initiative is to eliminate peak energy demand during periods where the demand on the electricity network is high (i.e. at certain times during the day) by >5% above the neutral. This was achieved due to the large solar PV component of the design.</p>	Inn-2	2	2	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to have a restorative environmental impact of at least 5% (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>ENE-5 Peak Demand reduction: On-site electricity generation eliminates the total impacts of the project by meeting 100% of the peak demand and also results in a substantial (>5% above neutral) restorative environmental impact.</p>	Inn-2	2	2	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to have a restorative environmental impact of at least 5% (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
ENE-1 Reduction of Greenhouse gas emissions						
<p>ENE-1 Green House Gas Emission-Photovoltaic (PV) Panels: The project exceeded current credit benchmarks- 58% above neutral by designing a system that produce more energy than it consumes via the addition of Photovoltaic panels over an annual period.</p>	Inn-2	2	2	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to have a restorative environmental impact of at least 5% (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>ENE-1 Reduction of Greenhouse gas emissions: This initiative aims to reward projects that produces a substantial (>5% above neutral) restorative environmental impact improvement in carbon emissions over the SANS204 notional building.</p>	Inn-2	2	2	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to have a restorative environmental impact of at least 5% (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>ENE-1 Green House Gas Emissions: The project has achieved a 124% improvement over the notional building as calculated in the ENE-1 Energy Calculator and 90% above neutral. Before the project considered renewable energy, the buildings energy usage was reduced substantially over the reference building by optimizing the energy use of the mechanical and electrical installation.</p>	Inn-2	2	2	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to have a restorative environmental impact of at least 5% (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>ENE-1 Greenhouse gas emissions: The building achieves a >5% improvement above neutral, and thus in excess of the current Green Star SA benchmarks and has a restorative environmental impact.</p>	Inn-2	2	2	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to have a restorative environmental impact of at least 5% (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-2 Exceeding Green Star SA Benchmarks						
ENE-2 Energy Sub-metering						
<p>ENE-2 Energy Sub-Metering: The extent of the energy sub-metering in the building far exceeds Green Star recommendations and extensive sub-metering have been installed in the building (661 meters). This has a mitigating impact on unmetered energy losses and the associated environmental impact of associated GHG emission as well as providing an invaluable historical data pool that supports heuristic energy management and enables continued targeted building optimisation over the project contract life.</p>	Inn-2	2	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
IEQ-8 External Views						
<p>IEQ-08 External Views-100% Direct Line-of-Sight: The project exceeded current credit benchmark through building design that provide 100% of the occupied space with a direct line of sight to the outdoors.</p>	Inn-2	2	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
IEQ-13 Volatile Organic Compounds						
<p>IEQ-13 Volatile Organic Compounds (VOC)-VOC Free Finishes: The project exceeded current credit benchmark by 5% by insuring that 100% of paints, adhesives and sealants used were VOC compliant, and that no carpets or floor finishes are used within the building.</p>	Inn-2	2	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
TRA-4 Community Mass Transport						
<p>TRA-4 Community Mass Transport: The initiative promotes the connectivity of buildings to its surrounding and to public infrastructure as well as promotive active living. The environmental benefit is calculated through a conservative calculation of CO2 reduction through the estimated reduced use of private vehicles.</p>	Inn-2	2	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
WAT-1 Occupants Amenity Water						
<p>Rain Water Harvesting: This innovation not only mitigates the impact of potable water use in the building but has a substantial restorative impact through off-setting >5% of the buildings total potable water usage through the diversion of excess recovered rainwater to the neighbouring building.</p>	Inn-2	2	2	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to have a restorative environmental impact of at least 5% (two points); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Rain harvested Treated water: The project incorporates a rainwater harvesting system that enables the capturing and treatment of rain water to drinking quality. The quantity of the available treated rain water exceeds the potable water demand of the building, except in the dry winter months.</p>	Inn-2	2	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>WAT-1 Water neutral/saving: Project eliminated environmental impact by providing solutions that resulted in the elimination of the specific negative environmental of credit Wat-1 i.e. for effectively being water neutral.</p>	Inn-2	2	1	Awarded	No Limit	Awarded INN-2: The GBCSA notes that this initiative achieves the threshold required to eliminate/neutralise the environmental impact (one point); the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-3 Environmental Initiatives						
Sustainable Features Knowledge Share & Tours						
<p>Learning Resources Display: This initiative encourages and recognise buildings has being designed to describe and display learning resources. These include continuous presentation of energy use, potable water saving and greenhouse gas emissions.</p>	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Sustainable Features' Display and Guided Tours: This guided tour will be offered on a weekly basis and undertaken by an employee with a thorough understanding of the building's green building initiatives. Permanent displays and information signage highlighting the green features within the building will be installed to impart knowledge about the building to users and visitors.</p>	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>Sustainable Features' Display and Guided Tours: The building has been designed with educational features highlighting the sustainability initiatives employed. A large number of persons will be exposed to the building via a guided tour, and large information boards and plaques are situated in the building to provide information on the green initiatives incorporated into the building's design.</p>	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>MAN-13-Sustainable Features' Display: ENERGY Live metering displaying daily and weekly energy usage of the building is to be continuously presented within the building to the immediate users as well as to secondary public groups via a building website allowing for public educational benefits and creating an awareness of Green Star SA as well as daily consciousness of sufficient energy consumption and water usage.</p>	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>MAN-13-Sustainable Features' Display: ENERGY & WATER Live metering display of daily and weekly water and energy usage data to the building user. This is also available on the building website to educate building users and create an awareness of consumption patterns.</p>	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<p>MAN-13-Learning Resources Display-Energy & water use, Greenhouse gas emissions: This initiative encourages and recognise buildings as being designed to describe and display learning resources. These include continuous presentation of energy use, potable water saving and greenhouse gas emissions.</p>	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-3 Environmental Initiatives						
Urban Heat Island Elimination Initiatives						
Urban heat Island Effect-Vegetated roof and roofing materials: The building makes use of a vegetated roof and roofing materials with a solar reflectance index (SRI)< 78 to reduce urban heat islands resulting in a low energy consumption and substantial environmental reduction of CO ₂ emissions.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Urban Heat Island-Polyver Super White Roofing: The building is designed to have more than 75% of the roof area finished with a product that has a Solar Reflectance Index (SRI) value of greater than 78%.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Urban heat Island Effect-Paving materials: Paving materials with an SRI of ≥ 29 have been installed for more than 50% of the site hardscape to reduce 'urban' heat islands and minimize impacts on microclimates, humans and wildlife habitats.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Urban heat Island Effect-Paving Materials: Paving materials with an SRI of ≥ 29 have been installed for more than 50% of the site hardscape to reduce 'urban' heat islands and minimize impacts on microclimates, humans and wildlife habitats.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Cyclist Facilities Initiatives						
Decongest Electrical Bike: The project's initiative aims to actively advocate Green Building and sustainable mobility. To achieve this, the building owner has offered 4 parking bays at the building to store 20 electric bicycles, and opened the site up to visitors as part of an electric bike tour of the city.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Green Lease Initiatives						
Green Lease: This initiative requires tenants to monitor the performance of energy, water and waste reduction of the building on an on-going basis and to prepare a procurement policy for the use of environmentally friendly consumables. This lease is signed by both the tenant and owner.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Waste and Recycling Management Initiatives						
Waste and Recycling Management Plan beyond MAN-9: This innovation deals with solid waste management at a level which is not covered by the GSSA – Office Design v1 tool. This innovation claim is in the format set out in the Man-9. Waste and Recycling Management Plan credit in the Green Star SA Retail Centre v1 tool.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Recycled and Re-used Materials						
Recycled Content: The project team has made use of a product with a high recycled content. The initiative is deemed to be a valid environmental concern outside the current scope of this Green Star SA Office v1 as it is currently included in another Green Star tool. The innovation is based on the Mat-3 Recycled Content & Reused Materials credit found within the Public and Education Building v1 technical manual.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Urban Consolidation						
ECO-7 (MURT V1)-Urban consolidation: The initiative aims to encourage and recognise designs which make use of compact development patterns to increase land utilisation efficiency. Note: This credit was awarded as an innovative point for Green Star SA - Multi Unit Residential (MUR) PILOT projects under INN-3 as it was only proposed for inclusion as a credit in MUR v1.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.

Initiative	Credit claimed	Points available	Points awarded	Outcome	Number of times awarded	GBCSA's Ruling
INN-3 Environmental Initiatives						
Ecosystem Improvement Initiatives						
<u>Improving Surrounding Eco-system:</u> The project aims to improve the surrounding river conditions that fall outside the specified extent of the refurbishment by clearing alien plants, pruning existing trees, treatment of existing cut tree stumps to prevent further growth, collection and removal of rubbish	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
IEQ 23-Stairs						
<u>Prominent StairsDesign:</u> The project awarded an innovation point for providing prominent stairs at the entrance of the building to encourage building occupants to take the stairs and promote the well-being of occupants.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
<u>Prominent Stairs Design- Well being of occupants:</u> This initiative aims to promote occupants well-being by making available to the building users and public stairs that are highly visible and located at close proximity to primary set of lifts or main entrance.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Ventilation Initiatives						
<u>Unoccupied spaces (PEB Ene 11):</u> The development is mechanically ventilated. Occupancy sensors, integrated with the HVAC systems, are provided for more than 90% of the occupied spaces. The control systems first reduces the space's supply air flow to the minimum setting when the space is unoccupied for a preset period of time, typically 15 minutes, the control system shuts down the supply air flow to the space completely.	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.
Water saving/Use Reduction Initiatives						
<u>HVAC bleed-off for re-use:</u> HVAC bleed-off for re-use is harvested and re-used for toilet and urinal flushing, resulting in only recycled water being used for toilet & urinal flushing. 100% of all water (waste water and Stormwater) is either re-used or infiltrated to groundwater (does not leave the site in any municipal infrastructure).	Inn-3	1	1	Awarded	No Limit	Awarded INN-3: The GBCSA notes that this initiative addresses a valid environmental concern outside the current scope of this Green Star SA tool; the project has provided adequate documented evidence and demonstrated and quantified the environmental impact.