



# Green Star SA – Office v1

## **SUMMARY OF CHANGES** ~FROM THE GREEN BUILDING COUNCIL OF AUSTRALIA'S GREEN STAR – OFFICE DESIGN V3 AND GREEN STAR – OFFICE AS BUILT V3

### INTRODUCTION

The Green Star SA – Office rating tool is based upon the Green Building Council of Australia's Green Star – Office Design v3 and Green Star – Office As Built v3 rating tools. The Green Building Council of South Africa (GBCSA) staff, along with technical consultant Arup and a voluntary Technical Working Group made up of industry professionals, evaluated all credits for adaptation to the South African market. The Green Star SA – Office tool now launched as version 1 has embraced all of the credits from the Australian version in some form and has brought in five new credits to better address the current South African context.

The following is complete inventory of all credits in the proposed Pilot tool with notations on any changes from the original Australian versions.

### Management

#### **Man-1: Green Star SA Accredited Professional**

- No change to the credit.

#### **Man-2 Commissioning Clauses.**

- No change to the credit.

#### **Man-3 Building Tuning**

- No change to the credit.

#### **Man-4 Independent Commissioning**

- Credit was enhanced to address planning for the long-term maintenance of building systems, and includes an option of allowing the commissioning agent to be from one of the companies on the project team, as long as he/she is not directly involved in the project.

#### **Man- 5 Building Users' Guide**

- No change to the credit.

#### **Man-6 Environmental Management Plan**

- No change to the credit.

#### **Man-7 Waste Management**

- Benchmarks were changed from two at 60%/80% to three at 30%/50%/70%. Accordingly, the credit is now worth three points instead of two.

## **Man-8 Airtightness Testing**

- This is a new credit, to the address the issue of air leakage in buildings.

## Indoor Environmental Quality

“Net Lettable Area” (NLA) was universally replaced with “Usable area” (UA) in the tool, as the definition of NLA in Australia differs in the South African context.

## **IEQ-1 Ventilation Rates**

- No change to the credit.

## **IEQ-2 Air Change Effectiveness**

- A deemed-to-satisfy route for compliance was added, whereby two of the three available points can be achieved through a displacement ventilation system that meets certain parameters.

## **IEQ-3 Carbon Monoxide Monitoring and Control**

- No change to the credit.

## **IEQ-4 Daylight**

- No change to the credit.

## **IEQ-5 Daylight Glare Control**

- No change to the credit.

## **IEQ-6 High Frequency Ballasts**

- No change to the credit.

## **IEQ-7 Electric Lighting Levels**

- No change to the credit.

## **IEQ-8 External Views**

- No change to the credit.

## **IEQ-9 Thermal Comfort**

- No change to the credit.

## **IEQ-10 Individual Comfort Control**

- The credit wording was revised to require that naturally ventilated buildings also include “individual temperature control or thermostatic control to the local heat source (if a heating system is provided).”

## **IEQ-11 Hazardous Materials**

- No change to the credit other than a reference to the South African Occupational Health and Safety Act (OH&S).

## **IEQ-12 Noise**

- The threshold for open plan offices was changed from 40dBAeq to 45dBAeq for open plan office space. The credit references local standards (SANS).

### **IEQ-13 VOC**

- No change to the credit.

### **IEQ-14 Formaldehyde Minimisation**

- No change to the credit.

### **IEQ-15 Mould Prevention**

- No change to the credit.

### **IEQ-16 Tenant Exhaust Riser**

- No change to the credit.

### **IEQ-17 Environmental Tobacco Smoke (ETS) Avoidance**

- This is a new credit for prohibiting smoking anywhere inside the building.

## Energy

### **Conditional Requirement**

- Both the Conditional Requirement and Ene-1 were changed from a comparison to an absolute benchmark in kilograms of CO<sub>2</sub> per square metre per annum to reference the new South African SANS 204 national standard for energy performance in buildings. Buildings are rewarded based on their performance relative to a notional building meeting the deemed-to-satisfy (DTS) criteria of SANS 204:2008. Projects must model both the DTS building and the actual designed building using the SANS schedules for design features (e.g. U-values) and the Green Star SA modelling protocol for operational parameters (e.g. occupancy rates). The actual building performance is then compared against the DTS building. Demonstration that the actual energy performance is equal to or better than the DTS notional building performance (measured in kgCO<sub>2</sub>/m<sup>2</sup>/annum) will meet the conditional requirement of the tool.

### **Ene-1**

- See description above under the Energy Conditional Requirement. Points are awarded based on performance beyond the SANS deemed-to-satisfy (DTS) building (measured as fewer kgCO<sub>2</sub>/m<sup>2</sup>/annum), with up to 20 points awarded for zero kgCO<sub>2</sub>/m<sup>2</sup>/annum or a 'net zero operating emissions' building.
- The energy calculator offers a wider range of fuel inputs than the Australian version, and the energy usages are broken down further.
- Additionally, a deemed-to-satisfy route for small office buildings was added. Buildings under 2000m<sup>2</sup> are permitted to use the ASHRAE "Advanced Energy Design Guide for Small Office Buildings." Buildings demonstrating that they meet the criteria within this standard are awarded 4 out of the 20 points available in the calculator.
- Requirements for underground car parks were changed. For both ground level and the first underground level of car parks, the benchmark is 100% natural ventilation. For underground car parks from the second level down, the benchmarks are no longer natural ventilation but kWh benchmarks.
- The baseline building does not have escalators.
- The baseline building lifts are standard traction lifts so that projects with efficiently designed lifts (e.g. lifts without motor rooms, lifts with regenerative braking, lifts with occupancy sensors) are rewarded.

### **Ene-2 Submetering**

- No change to the credit.

### **Ene-3 Lighting Power Density**

- One additional point was added for a threshold of 3.0W/m<sup>2</sup> per 100 lux.

### **Ene-4 Lighting Zoning**

- No change to the credit.

### **Ene-5 Peak Energy Demand Reduction**

- No change to the credit.

## Transport

### **Tra-1 Provision of Car Parking**

- Minor changes were made to the credit to refer to SA Dept of Transportation regulations.

### **Tra-2 Fuel-Efficient Vehicles**

- Reference to small cars was deleted, and this credit has been revised to address only alternative fuel vehicles, hybrids, carpooling and car sharing, with a benchmark of 5% of total parking spaces for these types of vehicles. An additional 5% of spaces must be for motorcycles/mopeds/scooters. The number of points available was increased to 2 points.

### **Tra-3 Cycling Facilities**

- The benchmarks for this credit were changed. One and two points are awarded for providing facilities for 3% and 6% of staff. An additional point is available for the provision of the visitor/courier parking.

### **Tra-4 Transport Calculator**

- Ferries were removed as an option and minibuses/taxis were added.
- Projects built within the designated distances from public transit facilities that are planned but not yet complete can be rewarded within the calculator if they demonstrate that they meet certain criteria.

### **Tra-5 Local Connectivity**

- This is a new credit, with the intent to reward development that enables people to drive less and walk more, through location in an area with a mix of uses and/or a certain level of density.

## Water

### **Wat-1 Occupant Amenity Water**

- Rainfall data for predicting rainwater capture has been modified for South Africa.
- Thresholds have been slightly lowered so that projects can achieve two points within the calculator (instead of one point) for the use of efficient fittings and fixtures.

### **Wat-2 Water Meters**

- In Australia, this credit offers one point for water meters connected to a building management system. In SA one point is awarded for the meters, which can be

monitored manually or electronically, and another point for the meters being connected to an automated system (BMS).

### **Wat-3 Landscape Irrigation**

- This credit was expanded from one to three points. One point is awarded for potable water reduction of 50%, and another point is awarded for potable water reduction of 90% or no potable water required. In order to provide an extra incentive for projects with large landscaped areas to save water, a third point is available to projects in which over 30% of the area requires landscaping and the second point above is achieved.

### **Wat-4 Heat Rejection Water**

- No change to the credit.

### **Wat-5 Fire System Water Consumption**

- No change to the credit.

## Materials

### **Mat-1 Recycling Waste Storage**

- Storage space for organic waste was removed as a requirement.

### **Mat-2 Building Reuse**

- The number of points available was reduced from 6 points to 5 points (specifically, only three points are available for reuse of building structures).

### **Mat-3 Reused Materials**

- The threshold for the quantity of reused materials was changed from 2% to 1% of the total contract value (excluding steel, concrete, timber, PVC and the existing building structure and façade).

### **Mat-4 Shell and Core or Integrated Fitout**

- The lower of the two points was deleted, leaving only the higher benchmark (90% of usable area), with one point for the credit.

### **Mat-5 Concrete**

- The benchmark for aggregate replacement was changed from 20% to 10% replacement.

### **Mat-6 Steel**

- Separate benchmarks were added for buildings with different structural types. There are separate benchmarks for the level of recycled content, depending on whether the building has a steel or concrete superstructure.

### **Mat-7 PVC Minimisation**

- The second point for 60% PVC replacement was deleted.

### **Mat-8 Sustainable Timber**

- The structure was changed from two points for 95% of timber from sustainable sources to one point for 50% of timber and two points for 95% of timber.

### **Mat-9 Design for Disassembly**

- No change to the credit.

### **Mat-10 Dematerialisation**

- The credit was expanded to reward reduction in structure, whether the predominant structural materials is steel, concrete or timber (it no longer only applies to steel structures) and the building does not need to have the equivalent of 50% of its GFA be of its predominant structural material.

### **Mat-11 Local Sourcing**

- This is a new credit for sourcing materials both extracted and manufactured close to the project site, to address both the embodied energy associated with transportation of materials and as a means for the tool to support SA businesses.

## Land Use & Ecology

### **Eco – Conditional Requirement**

- The ecology restrictions were revised for the South African context.

### **Eco-1 Topsoil**

- Benchmark was changed and an alternative means of compliance was added – either demonstrate that 75% (changed from 90%) of the topsoil has maintained its productivity or show how the topsoil has been protected during construction and that it has been spread to at least 200mm across impacted areas after construction.

### **Eco-2 Reuse of Land**

- An additional point was added for location within a designated urban edge.

### **Eco-3 Reclaimed Contaminated Land**

- No change to the credit.

### **Eco-4 Change of Ecological Value**

- The credit was customised with both SA bioregions and vegetation types. The functionality remains the same as the Australian version.

## Emissions

### **Emi-1 Refrigerant/Gaseous ODP**

- Gaseous fire suppression systems were added to the scope of the credit.

### **Emi-2 Refrigerant GWP**

- No change to the credit.

### **Emi-3 Refrigerant Leaks**

- No change to the credit.

### **Emi-4 Insulant ODP**

- No change to the credit.

**Emi-5 Watercourse Pollution**

- The credit was revised to award the two points separately for each initiative independent of the other initiative being achieved.

**Emi-6 Discharge to Sewer**

- No change to the credit.

**Emi-7 Light Pollution**

- The credit was revised to refer to a CISBE standard instead of an Australian standard and to address façade lighting, whether or not the lights are pointed skyward.

**Emi-8 Legionella**

- The credit wording was changed from “water-based cooling systems” to “evaporative systems.”

**Emi-9 Boiler and Generator Emissions**

- This is a new credit to reward projects that install low-polluting boilers and generators, protecting local air quality.