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## Releasing Green Star – Public Building v1

Since October 2010, the Green Building Council of Australia has been working with registered projects to test and improve Green Star – Public Building PILOT. Based on feedback received from PILOT projects to date, it has been determined that the Green Star – Public Building v1 rating tool be released to market. This document outlines the changes that have taken place between PILOT and Version 1 (v1).

### An overview of the rating tool

The Green Star – Public Building v1 rating tool assesses the environmental attributes of new and refurbished public buildings including their fitouts. For the first time, law courts, museums, art galleries, performance centres, theatres, auditoriums, and places of worship will now be able to access the benefits of Green Star certification.

Green Star – Public Building v1 is a flexible and adaptable rating tool, one designed to meet the needs of a diverse set of spaces typical of public buildings. It has been developed to rate projects in diverse geographical areas, as well as in rural and urban settings.

The feedback during the PILOT process was exceedingly positive. Project teams indicated that the adaptability of the rating tool allowed for significant flexibility in designing and demonstrating compliance. They also indicated that the rating tool was ready for release.

### Updating Green Star – Public Building v1

The following is a list of all changes made to Green Star – Public Building v1 from the PILOT rating tool. The list makes a differentiation between major changes (blue) and minor changes (green), and should help project teams understand any impacts that these changes may have on their projects. The GBCA does not expect significant impacts to any project that has been using Green Star – Public Building PILOT and that wishes to certify under v1.

This document outlines the major changes identified to date as part of updating Green Star – Public Building PILOT to Version 1. Some changes relate to simplifying documentation or clarifying some guidance in the Technical Manual. These changes do not affect the technical content of the rating tool significantly, and as such are not specifically communicated through this document. Should the GBCA identify any additional changes, this document will be updated, and any additional changes noted.

Credit	Name	Change
● General	About the Green Building Council of Australia	Paragraphs replaced to be in line with new strategic objectives and directions.
● General	Certifying your project	Deleted first paragraph under: General section of the Green Star Submission.
● General	Additional Information	<ul style="list-style-type: none"> <li>• 'Additional Information' title has been replaced with 'Weightings and Ratings'</li> <li>• 'Green Star rating' has been replaced with 'Green Star Design and As Built rating' where applicable</li> <li>• Paragraphs under 'Green Star Courses and Further Education section' have been updated to reflect changes in courses that are provided by the GBCA</li> </ul>
● General	Glossary	<p>GBCA will provide definitions for a number of terms not currently in the Technical Manual. These include:</p> <ul style="list-style-type: none"> <li>• Natural ventilation</li> <li>• Relevant authority</li> </ul> <p>The definition of 'Certified Assessor' has been rewritten</p>
● General	Submission Guidance	<p>GBCA will provide guidance on a number of issues related to submitting documentation for assessment. These include:</p> <ul style="list-style-type: none"> <li>• Use of As Built documentation for a Design rating;</li> <li>• Amendments to documentation during construction;</li> <li>• Naming of As Built Guidance; and</li> <li>• Specifications</li> </ul>

Credit	Name	Change
● General	Scorecard and Calculators	The Scorecard and Calculators for the rating tool have been updated to the latest version used in newly released Green Star rating tools.
● Man-1	Green Star Accredited Professional	<p>The credit will be in line with the revised Man-1 'Green Star Accredited Professional' (GSAP) credit released in August 2011.</p> <p>Previously, GSAPs were required to attend a certain percentage of all project and building services meetings - and all of the schedules and minutes from those meetings needed to be documented for Green Star submissions. Now, GSAPs can demonstrate compliance by submitting a contract or letter of employment which outlines a well-defined scope of works.</p> <p>For more information, <a href="http://www.gbca.org.au/green-star/man-1-green-star-accredited-professional-credit/3897.htm">http://www.gbca.org.au/green-star/man-1-green-star-accredited-professional-credit/3897.htm</a></p>
● Man-2	Commissioning	<p>The Credit Criteria for Man-2 (all rating tools) states that commissioning can be performed in accordance with ASHRAE Guideline 1-1996 (for mechanical services only) and CIBSE Commissioning Codes for other services. In addition to the documents outlined in the credit, the following two application manuals are now recognised as an appropriate standard for commissioning within this credit:</p> <ul style="list-style-type: none"> <li>• AIRAH application manual DA 27 Building Commissioning - 2011. This guide provides a comprehensive and Australian guide to building commissioning, similar to CIBSE Commissioning Codes.</li> <li>• AIRAH application manual DA 28 Building Management and Control Systems (BMCS) - 2011. This guide provides a comprehensive and Australian guide to controls and Building Management and control systems.</li> </ul> <p>These two guides must be used in unison. Where the credit states “CIBSE Commissioning Codes”, the credit should now be read as stating “CIBSE Commissioning Codes or both AIRAH DA27 and DA28”.</p>
● Man-2	Commissioning	Under the heading ‘Training of building management staff’ the first dot point reads “Information provided in the design intent report”. This line will be deleted from the credit.

Credit	Name	Change
● Man-2	Commissioning	Fire Systems will be excluded from the credit as they are legally required to be commissioned in Australia
		The Compliance Requirements will now state that: <i>It is acceptable for the Main Contractor to be responsible for maintenance and tuning duties as per the Technical Manual credit criteria, for the first 12 months post occupation. It is also acceptable for this responsibility to then be taken on by the building Property Manager for months 12-24 post occupation.</i>
● Man-3	Building Tuning	The following documentation will be required if this the case for both the Design and As Built rating: <b>- Contract between the building owner and the property manager</b> , outlining that the property manager is responsible for maintenance and tuning duties for months 12-24 post occupation in accordance with the design intent documentation from the design team, and the provisions of the Compliance Requirements section of this credit; as well as the project manager's list of roles and responsibilities during this period.
● Man-9	Building Management and Control System	The credit 'Building Management and Control System' will be removed from the rating tool. However, the content will be added into the <b>smart metering</b> provisions of Man-16 'Metering'
Man-16	Metering	
● IEQ4	Daylight	The credit criteria had been modified to allow a daylight factor (DF) measurement at floor level as well as desk height. This accommodates building types and uses where a measurement at desk height does not suit the building uses.

Credit	Name	Change
● IEQ-5	Thermal Comfort	<p>ASHRAE standard 55-2010 will be used in place of the ASRAE Standard 55-2004. In addition, the current guidance will be amended as follows, with regards to zoning requirements for the PMV calculations required for the credit.</p> <p><i>For equitable assessment, perimeter zones shall have a maximum depth of 4 meters;</i></p> <ul style="list-style-type: none"> <li>• <i>Zoning shall match the air conditioning zones (with the exception of perimeter zones which must be 4m in depth);</i></li> <li>• <i>Each perimeter shall be reported independently (e.g. North, South, East and West);</i></li> <li>• <i>Perimeter zones shall be reported independently of interior zones;</i></li> <li>• <i>Model shall be completed with all systems assessed simultaneously; and</i></li> <li>• <i>Comfort predictions shall be measured at the midpoint of each zone, i.e. if the perimeter zone is 4m deep then the comfort prediction will be 2m from the perimeter; OR Comfort predictions shall be taken as an average across the zone.</i></li> </ul> <p><i>Comfort predictions shall be measured at a height of 0.6m above FFL for seated occupants and 1.1m above FFL for standing occupants. A measurement height of 0.6m should be used within zones where predominant activity is seated such as in open plan offices; OR Comfort predictions shall be taken as an average across the zone.</i></p> <p>'Occupied Space' has been replaced with UFA. Section describing 'Occupied Space' has been deleted.</p>

Credit	Name	Change
● IEQ-7	Internal Noise Levels	<p>The Credit Criteria has been modified. The point for reverberation included:</p> <ul style="list-style-type: none"> <li>One point is awarded where for 95% of the nominated area the reverberation time does not exceed the lower 'Recommended Reverberation Time' provided in Table 1 of AS/NZS 2107:2000</li> </ul> <p>Based on feedback, it will now read:</p> <ul style="list-style-type: none"> <li>One point is awarded where for 95% of the nominated area the reverberation time is less than the higher range stated in the 'Recommended Reverberation Time' provided in table 1 of AS/NZS 2107:2000.</li> </ul> <p>'Occupied Space' has been replaced with UFA or 'nominated area'. Section describing 'Occupied Space' has been deleted.</p>
● IEQ-7	Internal Noise Levels	<p>The Compliance Requirements will now include the following statement:</p> <p><i>The operating conditions of the building, and of different spaces within the building as appropriate, shall be established according to the requirements of the standard named in this credit. All relevant indoor and outdoor noise sources must be included. Time of measurement can occur even when the building is unoccupied, provided that all external and internal sound sources that may be relevant are occurring, including building mechanical systems and traffic.</i></p> <p><i>In addition, acoustic testing does not need to be performed in every space of the tenancy; the acoustic consultant may nominate representative spaces and test those only. The selection of representative spaces must be justified within the short report and must consider how the spaces can be considered to be the most conservative with respect to both internal, and external, noise sources. The representative spaces should comprise at least 10% of the tenancy's NLA.</i></p>
● IEQ-8	Volatile Organic Compounds	<p>Compliance option on the basis of GBCA recognised product certification schemes has been included in the credit in relevance to flooring and fitout items. This aligns with this credit in other Green Star rating tools.</p>

Credit	Name	Change
● IEQ-9	Formaldehyde Minimisation	<p>Compliance option on the basis of GBCA recognised product certification schemes has been included in the credit to align with other Green Star rating tools.</p> <p>The following paragraph under 'Multiple Buildings Single Rating Guidance' has been deleted, as only one point is available for this credit:</p> <p><i>Points will be assigned based on whether all buildings achieve the required points. Some buildings might achieve the first point, and others the second or third. In such case, one point can be awarded for the project scope. To achieve all points, every building must achieve the relevant criteria for all available points.</i></p>
● IEQ-14	External Views	'Occupied Space' has been replaced with UFA. Section describing 'Occupied Space' has been deleted.
● IEQ-16	Exhaust Riser	<p>Maximum available points have been corrected. The stated 20 has been replaced with the correct number, which is one point available.</p> <p>Additional option for compliance has been included to align with other Green Star rating tools. This entails use of photocopy or printing equipment certified to relevant standards.</p>

Credit	Name	Change
● IEQ-16	Exhaust Riser	<p>The language around the credit criteria will be clarified slightly in the Compliance Requirements. In addition, a second option to the current credit criteria will be provided. The revised credit criteria will read:</p> <p><i>One point is awarded where all print/photocopy area(s) are:</i></p> <ul style="list-style-type: none"> <li>• <i>Exhausted to a dedicated exhaust riser with the following characteristics:</i> <ul style="list-style-type: none"> <li>– <i>Complies with Section 5.7 of AS1668.2-2002;</i></li> <li>– <i>Provides no less than 0.2L/s/m<sup>2</sup> for 100% of the print/photocopy areas;</i></li> <li>– <i>Has a take-off size of 0.35L/s/m<sup>2</sup> for 100% of the print/photocopy areas on any individual floor; and</i></li> <li>– <i>The exhaust system is not recycled to other enclosures of different use.</i></li> </ul> </li> </ul> <p><i>OR</i></p> <ul style="list-style-type: none"> <li>• <i>Fully enclosed, and exhausted through a system with the following characteristics:</i> <ul style="list-style-type: none"> <li>– <i>Complies with Section 5.7 of AS1668.2-2002;</i></li> <li>– <i>Exhausts 0.35L/s/m<sup>2</sup> for 100% of the print/photocopy areas on any individual floor; and</i></li> <li>– <i>The exhaust system is not recycled to other enclosures of different use.</i></li> </ul> </li> </ul> <p><i>If there are no dedicated print/photocopy area(s) then this credit is 'Not Applicable' and is excluded from the points available used to calculate the IEQ Category Score.</i></p>
● IEQ-17	Air Distribution System	Maximum available points have been corrected. The stated 20 has been replaced with the correct number, which is one point available.
● IEQ-23	Small Occupied Spaces	This credit will be removed from the rating tool, as it was determined that the issues that it was addressing were not significant enough to warrant its inclusion.
● Ene-1	Greenhouse Gas Emissions	The Greenhouse Gas Emissions calculator and guide were updated to include a method for calculating the energy use of swimming pool water. This is only applicable if your project contains a swimming pool.

Credit	Name	Change
		<p>The following paragraph was moved from 'Additional Guidance' to Credit Criteria:</p> <p><i>Where the local planning allowance stipulates maximum number of car parking spaces rather than minimum; points are awarded as follows:</i></p>
● Tra-1	Provision of Car Parking	<ul style="list-style-type: none"> <li>• <i>One point is awarded where the number of car parking spaces is at least 25% less than the maximum local planning allowances applicable to the project ; and</i></li> <li>• <i>Two points are awarded where the number of car parking spaces is at least 50% less than the maximum local planning allowances applicable to the project.</i></li> </ul>
● Tra-3	Cyclist Facilities	<p>Maximum available points have been corrected. The stated 20 has been replaced with the correct number, which is three points available.</p>

Credit	Name	Change
● Wat-1	Potable Water	<p>The rainwater calculation section of the potable water calculator has been amended to accurately account for the size of the rain water storage tank.</p> <p>This change means that the size of the rainwater tank now has a significant impact on the amount of water able to be collected – if the proposed tank is less than 20 x average daily demand then the amount of rainwater collected will be reduced. The Potable Water Calculator Guide has also been updated.</p> <p>In addition, guidance will be provided for projects that share a rainwater tank in the calculator. This guidance will specify:</p> <p><i>Projects that have multiple buildings sharing a central rainwater tank must follow the following procedure for calculating the amount of water available for each building:</i></p> <ul style="list-style-type: none"> <li><i>The total amount of rainwater available for the site is to be calculated based on the total collection area connected to the central rainwater tank.</i></li> <li><i>The amount of water available to each building must be calculated based on the demand from that building as a ratio of the total site demand (i.e. demand from every building connected to the rainwater tank).</i></li> <li><i>Water available for building A = {demand from building A/total site demand} x total amount of rainwater available.</i></li> </ul>

Credit	Name	Change
●	Wat-5 Fire System Water	<p>Replaced the term non-potable water with captured water. This change is a result of expert advice that greywater or blackwater cannot be used for fire system testing. The term captured water has been included in the tool glossary. Additional criteria will be added to the credit.</p> <p>Projects that use captured water for the fire system testing can now claim points under this credit. The credit Criteria will now read:</p> <ul style="list-style-type: none"> <li>• The fire protection system uses 80% captured water.</li> </ul> <p>The documentation for demonstrating compliance will state:</p> <p><i>To demonstrate this, the project must provide:</i></p> <ul style="list-style-type: none"> <li>• <i>A short report describing that potable water use is reduced by a minimum of 80% by: <ul style="list-style-type: none"> <li>– describing the system, its operation and testing requirements of the proposed fire protection system;</li> <li>– where a sprinkler system is present, describing how the potable water use is reduced by a minimum of 80% through use of captured water sources.</li> </ul> </i></li> <li>• <i>Tender drawings to show the connection of the fire test water to captured water supply, and show the fire protection system for each typical floor.</i></li> <li>• <i>As-installed drawings to show the captured water sources.</i></li> <li>• <i>Evidence of system compliance with AS2118.1-2006 and any relevant state fire regulations.</i></li> </ul>

Credit	Name	Change
● Wat-5	Fire System Water	<p>The documentation for claiming the 'Not Applicable' clause will be clarified. It will state:</p> <ul style="list-style-type: none"> <li>• <i>Short report from a suitable professional that describes why this credit should be 'not applicable'. The report must state how the project meets the required fire safety standards outlined in the BCA.</i></li> <li>• <i>AND either one of the following:</i> <ul style="list-style-type: none"> <li>– <i>Copy of the Development Approval where it is indicated that the building does not have a sprinkler system.</i></li> <li>– <i>Extract(s) from the Fire Engineering Report where it states that the building's fire suppression system has no sprinklers.</i></li> </ul> </li> </ul>
● Wat-8	Swimming Pool / Spa Water Efficiency	<p>The Credit Criteria has been included in this rating tool. It addresses swimming pools and spas.</p> <p><i>Two points are awarded where it is demonstrated that:</i></p> <ul style="list-style-type: none"> <li>• <i>A pool blanket and a spa blanket is included to prevent water loss from evaporation; and</i></li> <li>• <i>The potable water consumption has been reduced by at least 70% through either or a combination of:</i> <ul style="list-style-type: none"> <li>– <i>Efficient swimming pool and spa filtration system compared to traditional sand filtration;</i></li> <li>– <i>Backwash water is collected and treated for re-use on-site; and</i></li> <li>– <i>The pool and spa make-up water is non-potable water.</i></li> </ul> </li> </ul> <p><i>Where no swimming pool or spa is included in the development, this credit is "Not Applicable" and is excluded from the points available to calculate the Water Category Score.</i></p>
● Mat-2	Building Re-use	Under 'Additional Guidance – Calculating Compliance Table' the points awarded have been changed to 2.

Credit	Name	Change
● Mat-4	Concrete	<p>This credit will be updated in line with the changes proposed and based on industry feedback. In particular, new criteria for the use of alternative fine aggregate and non-potable water in concrete. The credit achieves reductions in the environmental impact of concrete use through the use of:</p> <ul style="list-style-type: none"> <li>• supplementary cementitious materials in place of Portland cement</li> <li>• captured or reclaimed water in place of mains water in concrete</li> <li>• alternative coarse and fine aggregate in place of virgin aggregate in concrete.</li> </ul> <p>Through the introduction of templates and a reference case for supplementary cementitious materials use, the revised Concrete credit has been streamlined in comparison to the previous approach. For more information, see: <a href="http://www.gbca.org.au/green-star/materials-category/draft-revised-concrete-credit/3453.htm">http://www.gbca.org.au/green-star/materials-category/draft-revised-concrete-credit/3453.htm</a></p>
● Mat-5	Steel	<p>Light Steel Framing Systems will be excluded from Table 1 of this credit.</p> <p>Credit Criteria will be reworded.</p>
● Mat-7	Timber	<p>The following will be added to the technical manual:</p> <p><i>A project achieving 'full certification' under an approved timber project certification scheme is deemed to satisfy the requirements of the Timber credit in Green Star rating tools. The certificate for the project is the means to evidence compliance. See: <a href="http://www.gbca.org.au/gbca.asp?docID=2932&amp;show-hidden=1">http://www.gbca.org.au/gbca.asp?docID=2932&amp;show-hidden=1</a> for more information</i></p>
● Mat-8	Design for Disassembly	<p>The Credit Criteria will be modified slightly. The requirement that 50% (by area) for structural framing, roofing and facade cladding systems must be designed for disassembly refers to a percentage of the total area of all these components, not 50% for each system.</p> <p>The labelling requirements of the credit can be incorporated in the operation and maintenance manual instead of being attached to each of the relevant structural elements.</p>

Credit	Name	Change
		<p>Following consultation with GBCA members, industry stakeholders, manufacturers and suppliers, the GBCA has streamlined the credits for fitout materials, consolidating some credits to simplify Green Star certification, and updating others so that they continue to drive demand for environmentally-preferable fitout products.</p> <p>Stakeholder feedback during the public comment period supported a change to the scoring system. These changes are explained in detail in the Stakeholder Feedback Report and in the Fitout Calculators Guide available at <a href="http://www.gbca.org.au/green-star/materials-category/fitout-calculators/3047.htm">http://www.gbca.org.au/green-star/materials-category/fitout-calculators/3047.htm</a> . The two main changes are:</p>
●	Mat-11 Joinery	<ul style="list-style-type: none"> <li>Only re-used products or products certified to a certification standard recognised under levels A or B can achieve a score of 100%. Non-certified new products, and products certified to a certification standard recognised under level C can no longer achieve a 100% product score. This change corresponds with the increased number of certification standards recognised by the GBCA and reflects the importance of third party certification of fitout items as the best way to establish environmental performance.</li> <li>Green Star points are now calculated as a percentage of the points available. For example: 2.4 points will be awarded if 3 points are available in a credit and an overall score of 80% is achieved. The draft version of the calculator only awarded whole points when certain overall score levels were met. This change provides a more accurate correlation between improved environmental performance in selection of fitout items and the points generated towards a Green Star rating. The Guide outlines in detail how the scoring system works.</li> </ul>
	Mat-12 Assemblies	
	Mat-13 Furniture	
●	Emi-4 Insulant ODP	<p>Under 'Background', the following sentence has been replaced:</p> <p><i>CFCs are commonly used as refrigerants, solvents and blowing agents for plastic foam manufacture, and are scheduled to be phased out by 2020.</i></p> <p>With</p> <p><i>HCFCs are commonly used as refrigerants, solvents and blowing agents for plastic foam manufacture, and are scheduled to be phased out by 2020.</i></p>

Credit	Name	Change
● Emi-5	Stormwater	<p>The Compliance Requirements will be clarified. It will now state that stormwater that does not discharge from the site in a 1.5year ARI does not require active treatment.</p> <p>In addition, the following guidance will be present in the credit with regards to free oils:</p> <p><i>The latest version of the MUSIC software (v5) allows for the modelling of alternate constituents (beyond TN,TP,TSS and gross pollutants). Following feedback from the software developers, it is advised that Total Suspended Solids (TSS) is used as a surrogate for Total Petroleum Hydrocarbons, but not for Free Oils. The requirement for modelling of Free Oils is temporarily withdrawn until a version of the software is released that allows modelling of Free Oils.</i></p> <p>'Documentation – Design Rating' and 'Documentation As-Built Rating' have been updated to ensure that all the listed evidence is explained below.</p>
● Emi-6	Discharge to Sewer	<p>Maximum available points have been corrected. The stated 20 has been replaced with the correct number, which is four points available.</p>