OUTCOMES OF PUBLIC REVIEW OF THE NEW GENERATION OF GREEN STAR – OFFICE

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green building council australia

greenstar

1. SUMMARY

The GBCA entered 2008 with an ambitious rating tool development agenda; five rating tools and two proprietary Calculators are scheduled to be finalised (Green Star – Retail Centre, Green Star – Education, Green Star – Healthcare, Green Star – Office Existing Building, Green Star Management Efficiency, and the Green Star – Office v3 and Green Star – Office Interiors v1.2 Energy Calculators, currently in the PILOT phase). Two additional tools are also scheduled to be launched as PILOT (Green Star – Multi Unit Residential, Green Star – Industrial).

In addition, in February 2008 the GBCA released new versions of Green Star – Office Design and Green Star – Office As Built, with the impending release of the next incremental version of Green Star – Office Interiors (Green Star - Office Interiors v1.2) in the first half of the year.

Upon the completion of the PILOT phase and the release of the final version (version 1), all Green Star rating tools undergo a full public review process and are reissued when revisions are undertaken as a result of any of the following occur:

- Best practice becomes standard practice as a result of industry progress;
- New best practice standards emerge;
- International innovation redefines world leadership in green building;
- National goals change in priority, such as drought mitigation;
- Formal Stakeholder Feedback suggests changes to current tools;
- Project assessment identifies areas for improvement;
- A need is identified to align credit wording with the overall Green Star aims; and
- A need is identified to provide more clarity to projects undergoing assessment.

Transparency of Green Star review is ensured by the formal Stakeholder Feedback process, http://www.gbca.org.au/green-star/stakeholder-engagement-feedback/, and Stakeholder Feedback Reports outlining the GBCA responses to public comment have been published annually. To further ensure the rigor and relevance of the proposed revisions, the GBCA issued proposed *Summary of Changes* for public review (on the GBCA website) from 1 May to 1 June 2007.

Feedback was received in writing and during two public forums held in Sydney on 11 May and in Melbourne on 8 June, when the GBCA staff discussed the proposed changes with over 100 industry professionals. This report presents the outcomes of the Public Review Period by identifying the issues raised and stating the ensuing action of the GBCA.

The review of the changes proposed to the current Green Star – Office rating tools was limited to the scope identified within the *Summaries of Changes*. No new credits or revisions were considered as a result of the public review of the *Summary of Changes* because it would have been inappropriate for the GBCA to issue the next versions of the rating tools with major changes that have not been reviewed by the public, even if submissions requesting them were plausible.

Any revisions made to the *Summary of Changes* published on 1 May are intended to improve the amendments already reviewed by the public during the Public Review Period. If public comments received at that time proposed new approaches or investigations, they have been taken on board for further improvement of the Green Star rating tools. These will be considered and, based on their merit, reflected in the Green Star suit of tools during 2008.

The GBCA is confident that Green Star – Office Design and Green Star - Office As Built v3 incorporate the overwhelming majority of feedback received on Green Star – Office v2 received through to the end of 2007. Therefore, a separate report addressing those comments appears redundant and would draw the GBCA resources from other industry focused activities. However, if you submitted feedback following April 1 and believe it has not been sufficiently addressed by either this Report or Green Star – Office v3, the GBCA strongly encourages you to submit constructive feedback to greenstar@gbca.org.au with 'Stakeholder Feedback' in the subject line.

2. GENERAL

Concern was expressed over how third-party certification bodies for product eco-labelling might be recognised within Green Star.

GBCA Response: A materials stakeholder engagement process has been initiated and aims at ensuring that a transparent and equitable approach to the development of the GBCA's recognition policy for third-party certification bodies and best-practice environmental standards has been established and made available to the public for participation. All stakeholders have an opportunity to be involved and informed via the newly formed Industry Reference Group for Materials (IRG). The first task of the IRG will be to provide specific feedback on a Discussion Paper, to be released September 1st 2007, that outlines the proposed methodology. The IRG will be invited to provide comment on the proposed methodology to further inform its development.

It was mentioned that proposed changes to key elements, such as energy improvement, will be too aggressive for the market to readily adopt. Furthermore, several comments were made regarding the adoption of Version 3 in the marketplace, suggesting that the changes were too aggressive for the market.

GBCA Response: Green Star defines green building for the Australian context at any point in time, and each credit is deemed consistent with the definition that will hold relevant until the next revision.

Why is Green Star – Office Interiors having a major update? There are only 4 certified projects and the last one was certified in July 2006. This suggests that the industry is still coming to grips with the rating tool and so making wholesale changes does not seem justified at this time

GBCA Response: Many more fitouts are registered. Green Star defines green building for the Australian context at any point in time, all each credit is deemed consistent with the definition that will hold relevant until the next revision.

Why V1.2 – the changes are significant enough to make it a V2. Making it a 1.2 suggests the changes are negligible and this is definitely not the case.

GBCA Response: Version 2 will be issued when the Materials Category has been revised, as it was frozen for this cycle of review.

Has the GBCA considered incorporating NABERS water benchmarks into Green Star to create stronger link between actual performance and potential performance?

GBCA Response: Yes, the GBCA is working with DECC on possible ways of integrating new NABERS tools into Green Star as they become available.

It was queried whether the GBCA is liaising with FMA.

GBCA Response: The GBCA staff are on the FMAA Sustainability Committee.

It was suggested that Green Star weightings be based on climatic zones rather than state boundaries.

GBCA Response: The GBCA is currently investigating this approach and will be drawing on industry experts state-by-state to help inform the next stage of this process.

3. MANAGEMENT

MAN-2 'COMMISSIONING CLAUSES'

It was suggested that due to the nature of the CIBSE and ASHRAE, it is impossible to know how to demonstrate compliance with the 'letter' of code(s).

GBCA Response: Compliance 'with the intent' is not deemed acceptable as assessment would be subjective.

MAN-3 'COMMISSIONING – BUILDING TUNING'.

It was questioned why full recommissioning is required, as it would imply that all systems are reset to original conditions.

GBCA Response: The Technical Manual has now clarified what is required to meet this criterion.

The benefit of 'complete re-commissioning' was questioned because the entire building would need to be vacated.

GBCA Response: The GBCA is convinced that the benefit of comprehensive building tuning cannot be overemphasised; system tuning after-hours is considered to be a reasonable effort for best-practice projects to ensure that the building operates to its design potential.

MAN-5 'BUILDING USERS 'GUIDE'

It was suggested that as Building Users' Guides are not generally prepared during the design phase, a draft be acceptable.

GBCA Response: Green Star assesses attributes at the time of assessment; the project can choose not to claim this credit if the Building Users' Guide will not be prepared at the design phase.

MAN-6 'ENVIRONMENTAL MANAGEMENT'

It was suggested that as EMPs are prepared by the contractor and not the design team, the current requirements can not be met with tender documents.

GBCA Response: Green Star assesses attributes at the time of assessment, and even a Green Star – Office Design rating needs to be indicative of solid attributes. The project can choose not to claim this credit if the EMP has not yet been developed (e.g. if the project is not yet at the construction documents phase).

MAN-6 'WASTE MANAGEMENT DURING TENANCY FITOUT', GREEN STAR – OFFICE INTERIORS V1.2

MAN-7 'WASTE MANAGEMENT', GREEN STAR – OFFICE V3

It was suggested that integrated fitout projects be allowed to submit evidence for the fitout only if it is available, and for the entire project in all other circumstances.

GBCA Response: Agreed.

It was suggested that whenever the 'bulk' basis for compliance is used, the waste contractor must provide details of the categories into which the waste has been sorted along with quantities of each type of waste.

GBCA Response: Agreed.

4. INDOOR ENVIRONMENT QUALITY

IEQ-1 'VENTILATION RATES'

It was recommended that mixed-mode projects be awarded a varying number of points from 1 to 3 based on time of operation under each mode. By operating in natural ventilation mode for 30, 60, or 90% of operational hours, one could gain associated points for non-use of mechanical system.

GBCA Response: Disagree. This initiative is rewarded under the Energy Category.

Introduction of default occupancy rates was criticised as it may lead to over-design.

GBCA Response: Agreed. Design occupancy, not default occupancy from relevant standards, must be used for all credits that address the mechanical ventilation system(s).

IEQ-2 'AIR CHANGE EFFECTIVENESS'

It was suggested that the definition of the return air grille placement was too tight. The CFD model should only need to define the typical air distribution system including return air path.

GBCA Response: Additional clarity has been provided to this credit, and a new Deemed to Satisfy Criteria has been introduced. All modelling must be in accordance with ASHRAE Standard 129-1997.

It was suggested that the inclusion of mesh size is irrelevant to the credit.

GBCA Response: Agreed. The reference to mesh size has been deleted from the credit.

IEQ-3 'CARBON DIOXIDE MONITORING AND CONTROL'

It was recommend that the definition of '100% outside air' be clarified to refer solely to as air supplied to the space, excluding the ceiling void (so as to exclude active chilled beams and fan coil units).

GBCA Response: The requirement for 'no recirculation component' sufficiently deals with the IEQ implications of this issue. Further investigation is necessary to tighten the definition of '100% outside air' without losing focus on the benefit.

IEQ-4 'DAYLIGHT'

It has been suggested that calculating daylight at desk height will result in less robust measurements.

GBCA Response: The GBCA does not see reasons why desk height measurements would be less robust. As daylight is only useful for the purpose of IEQ if it is on the working plane, and for consistency among all lighting credits within Green Star, the proposed change to measurement at desk height (720mm AFFL) is sustained.

Furthermore, it has been clarified that compliance on the basis of DI implies dynamic simulation of daylight for each hour of a whole year.

It has been suggested that if daylight is to be calculated at desk height, the Daylight Factor required needs to be 2, not 2.5.

GBCA Response: Agreed.

IEQ-6 'HIGH FREQUENCY BALLASTS'

The non-mandatory requirement and inclusion of this credit in Green Star was questioned, as High Frequency Ballasts are quickly becoming standard industry practice.

GBCA Response: The GBCA aggrees that this initiative is rapidly becoming standard practice in office developments. However, this credit is a core credit across all Green Star rating tools and high frequency ballasts will be rewarded until their installation becomes standard practice across most building types.

IEQ-7 'ELECTRIC LIGHTING LEVELS'

It has been suggested that the GBCA provide more guidance on how the measurements must be taken.

GBCA Response: Agreed. It has been clarified that all projects must use the grid of no more than 1m by 1m, and that the points must be at least 0.5m away from any window.

Comments were made regarding the specification that lighting levels be set at under 400 Lux, but over 320 Lux at all points as it may prove impossible for some calculation programs and layouts that generally meet the intent of the clause to comply with the credit. It was therefore suggested that a more realistic and consistent approach would be to require a minimum 95% of calculated points to be under 400 Lux, with min. calc. grid dimensions set at 1m x 1m.

GBCA Response: The Credit Criteria already stipulates compliance for 95%, not 100% of the NLA. It has been clarified that measurements must be taken on a grid of 1m x 1m and that the first point can be no closer than 0.5m to a window.

Comments disagreed that dimming controls couldn't be used. Mention was made that factory set dimming levels or on site commissioned dimming levels should be acceptable.

GBCA Response: Assessment of the maintained illuminance already addresses the loss of lighting output that results in aging of fixtures. Green Star assesses building attributes; installing excess capacity counteracts the aim of this credit.

It has been suggested that the proposed maintenance factor of 0.7 is too low and will result in over-design.

GBCA Response: Agreed. The maintenance factor has been revised to 0.8.

IEQ-8 'EXTERNAL VIEWS'

Mention was made regarding a change in the perimeter distance, from 8m to 6m. 8m was referenced from international sources. Why was this change made in version 3?

GBCA Response: The reference to 6m was made in error and has been reverted back to 8m.

IEQ-9 'THERMAL COMFORT' - DEEMED-TO-SATISFY CRITERIA:

It was suggested that including radiant temperature in the deemed-to-satisfy criteria necessitates modelling that these criteria aim to avoid.

GBCA Response: Wording of the criteria has been revised to read as follows: "Mean radiant temperature of within the range of 20°C to 27°C OR shading is provided to meet the credit criteria of IEQ-5 'Glare Control'"

It was suggested that references to double glazing be deleted as Green Star should not be dictating specific solutions when more than one will give a good performance.

GBCA Response: Projects can choose to demonstrate compliance using modelling, which can accommodate any variety of solution; deemed-to-satisfy criteria are inherently simplified. As the GBCA finds ways to improve this deemed-to-satisfy approach, clarifications will be posted on the Technical Clarifications section of the website.

IEQ-10 'INDIVIDUAL THERMAL COMFORT CONTROL'

Reference was made that the 0.72m2 minimum appears to be based on a BCA 'one size fits all' approach and shouldn't be constrained in this way. Better to be based off modelling where ventilation rates can be assessed according to each situation.

GBCA Response: There was a typo in the size of the opening for naturally ventilated buildings (e.g. not for floor grilles); it's been corrected from 0.72m2 to 0.75m2, as per the previous versions of the Technical Manual.

IEQ-10 'INTERNAL NOISE LEVELS', GREEN STAR – OFFICE INTERIORS V1.2

IEQ-12 'INTERNAL NOISE LEVELS', GREEN STAR – OFFICE V3

It was suggested that the 3 dBLAeq is too small as it is the smallest increment of sound that can be detected by a human ear. This will just result in acoustic engineers playing with numbers until the desired result is achieved. Green Star should mandate that a space not be too noisy (i.e. set a maximum limit) and, if a space is too quiet, require a masking system (pink noise) be introduced. In reality, too quiet is rarely a problem in an open office area, because people moving around generate enough background noise.

GBCA Response: For Green Star – Office Interiros v1.2 the ambient noise levels are a maximum of 40dBLAeq in general offices and 35dBLAeq in private offices as per AS/NZS 2107:2000 'Acoustics – Recommended Design Sounds Levels and Reverberation Times for Building Interiors'. A noise level maximum and minimum had originally been proposed for this credit; however this was dropped to reflect only the required maximum noise level for the fitout. Changes were also made in wording with regards to partitioning.

IEQ-13 'VOLATILE ORGANIC COMPOUNDS' - CARPET

It was suggested that Carpet and Rug Institute (CRI) Green Label Plus criteria replace the existing CRI Green Label standard.

GBCA Response: Future revisions of the Green Star Tools will most likely adopt the CRI Green Label Plus criteria (or equivalent) however, it prompts changes to the credit criteria whose outcomes were not offered for comment during the Public Review Period. Therefore, the GBCA will gladly take note of this suggestion for the next cycle of Green Star review.

IEQ-13 'VOLATILE ORGANIC COMPOUNDS' - PAINT

It was suggested that clarification be made about documentation required for compliance with the credit as well as what applications of paint are covered by the credit (e.g. are exterior applications subject to compliance). Requests were also made for paint applications and additional line items to be clarified in the VOC limits table. Feedback about the shortcomings of concentration-based emissions testing for dehydrated paint products and the proposed lowering of VOC content limits was also received.

GBCA Response: Clarification on documentation and excluded applications for compliance with the credit has been incorporated into Credit Compliance and Additional Guidance sections. Additional line items were made to the VOC Limits Table, as well as a more intuitive display of paint applications and paint types. The proposed exclusive recognition of rate-based emissions testing for VOC levels of products was not adopted. Instead, recognised acceptable VOC levels may be reported according to either concentration by content (e.g. grammes/litre) or by rate-based emissions (e.g. mg/m2/hr). This approach maintains consistency with the current GECA Architectural Coatings Standard and is supplemented by the European 2010 Directive VOC levels for several surface-coating applications which are not covered by the GECA standard.

IEQ-14 'FORMALDEHYDE MINIMISATION'

It was suggested that the GBCA needs to clarify and correct the formaldehyde emissions testing methods and standards recognised for compliance with the credit as well as to clarify what applications of composite wood products are covered by the credit (e.g. are exterior applications subject to compliance of credit).

GBCA Response: Clarification and correction of acceptable emissions testing standards and methods has been provided to include both 'rate-based' (e.g. mg/m2/hr) and 'concentration-based' (e.g. grammes/litre) testing methods. An extended background section has been added to the Credit to demystify the confusion associated with formaldehyde emissions testing. Excluded applications of composite wood products have been clearly identified.

IEQ-16 'TENANT EXHAUST RISER'

The basis for reducing the air volume per floor was questioned.

GBCA Response: The reduction was based on current best practice and on expanding the criteria to allow for negatively pressurised areas.

5. ENERGY

It was suggested that Green Star should consider embodied energy.

GBCA Response: This feedback is valuable. However, it prompts investigation that was outside of the scope of the initial changes proposed during the Public Review Period. Therefore, the GBCA will gladly consider constructive suggestions on this topic for ongoing improvement of the Green Star suite of tools, especially as a consistent or agreed-upon methodology for calculating a building's embodied energy emerges internationally.

ENE-1 'PREDICTED GREENHOUSE GAS EMISSIONS'

The table below outlines the issues raised in the submissions during the Public Review Period, and the GBCA response that explains the reasons for the taken position or outlines corrective action.

Issue	Criticism	GBCA Response
1. Alternative methodology	*Providing an alternative to ABGR will force clients to model three times: for BCA, and then for both Green Star Calculator and ABGR to see which gives the better result. Consequence: cost burden and confusion.*	Providing an alternative is a strategic decision of the GBCA Board, and provides the following benefits: • Restores control over modelling methodology to the GBCA, enabling it to effectively manage and revised it (which has not been the case with ABGR, administered by DEUS/DECC); and • Provides an alternative for those who do not, for whatever reason, want to use ABGR. The GBCA is suggesting changes to ABGR that might align the two alternatives, further negating this issue.
2. Bias against Victoria and	*Wasn't the purpose of the change to negate the ABGR bias against Victoria? Within*	The change was not intended to simplify compliance for VIC, but to provide a true assessment of

QLD	*the new approach, Victoria (and QLD) will have to work significantly harder to achieve the same points as other states.*	environmental impact and to address criticism of ABGR, such as the ambiguity that surrounded normalisation within it. While VIC can be seen to still be 'disadvantaged', that disadvantage can no longer be attributed to calculation methodology, but merely to the quality of its energy source (brown coal) and to lack of climate-sensitive design. For a level playing field and a clear change trajectory, buildings must be assessed on true environmental impact, not on the way they arbitrarily compare to each other. In addition, illuminating the impact of the energy source provides leverage for constituency-driven change.
3. Points determined by location	*It will be significantly harder to achieve a Green Star rating in some states over others, creating a potential need for adjusting briefs.*	While Ene-1 is a very significant credit in terms of the project's final score, it still accounts for only a fraction points any project can chose to claim. While a significant credit both in terms of the number of points and of the weighting of the Energy Category, Ene-1 still accounts for only 13.39% of the total available points to achieve a desired rating (17.8% of the total possible score, i.e. 100). Any project will still be able to achieve any Green Star rating by a) 'picking its battles' and b) focusing on context- and climate-specific design.
4. Size bias	*Larger and taller projects are disadvantaged because the roof area to GFA to ratio is too low to allow for sufficient onsite generation.*	Biases come out in the wash when considered across the entire Green Star tool: some credits are easier for larger projects while others, for smaller; some, for urban while others, for rural projects. If anything, Green Star has been accused of penalising smaller projects. In addition, not all on-site generation is dependent on the roof-to-GFA ratio.

<table>
<tr><td>5. Linear scale for points</td><td>A linear scale does not reflect that reaching each subsequent threshold becomes progressively harder.</td><td>For a level playing field and a clear change trajectory, each point must be set on environmental impact, not on ease of attainment or cost.</td></tr>
<tr><td>6. Carbon-neutral threshold</td><td>It is too early to set the threshold for maximum points at 'carbon-neutral base building'.</td><td>Green Star defines green building for the industry based on national (such as the Green Cities conference of February 2007) and international agendas. Green Star must respond to those by defining this challenge for the industry, for the clarity of the GBCA message and for international and national leverage.</td></tr>
<tr><td>7. The bar is raised too high</td><td>In some states, projects that are modelled to achieve over 5 Star ABGR may not pass the Conditional Requirement, and in general, achieving points is too difficult.</td><td>Without lowering the goal (carbon-neutral base building), the GBCA will lower the threshold for the Conditional Requirement (from 100 to 110 $kgCO_2$ /m^2/annum) and increase the total number of available points to 20 to reward more incremental improvement. Each point is now worth 5 $kgCO_2$ /m^2/annum, as follows:
<table>
<tr><th>Predicted Greenhouse Gas Emissions ($kgCO_2$ /m^2/annum)*</th><th>Points Awarded</th></tr>
<tr><td>110</td><td>Conditional</td></tr>
<tr><td>95</td><td>1</td></tr>
<tr><td>90</td><td>2</td></tr>
<tr><td>85</td><td>3</td></tr>
<tr><td>80</td><td>4</td></tr>
<tr><td>75</td><td>5</td></tr>
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8. 'Stairs'	*While the initiative is good, singling it out counteracts the purpose of holistic design. It should be incorporated into the modelling methodology.*	This credit has been removed. During modelling in accordance with the Energy Calculator Guide, the energy consumption of lifts can be reduced if stairs of certain qualities are present.
9. 'Centralised Energy Systems'	*While the initiative is good, singling it out is in conflict with the push for holistic design. It should be incorporated into the modelling methodology.*	This credit has been removed. During modelling in accordance with the Energy Calculator Guide, efficient centralised energy systems are rewarded. Statements of support of centralised energy systems have been retained within Ene-1.
10. 'External Lighting'	*While the issue needs to be addressed, singling it out is in conflict with the push for holistic design. It should be incorporated into the modelling methodology. This would also be consistent with ABGR.*	This credit has been removed. During modelling in accordance with the Energy Calculator Guide, efficient external lighting will be rewarded.
11. Internal Lighting	*Including tenant lighting in energy modelling is inconsistent with ABGR, creates a major greenhouse gas penalty for using the Green Star methodology and is counterproductive to ongoing management, when the energy consumption of tenant lighting is not a responsibility of the building owner.*	While the greenhouse penalty could be resolved, tenant lighting will be excluded from energy modelling to address the other issues. Common area lighting will still be attributed to the base building.
12. Car parking	*Creating a separate credit is inconsistent with the ABGR methodology and is in conflict*	It is not acceptable for the GBCA to award 'compensation' points for projects with internal car parks that

	with the push for holistic design. It should be incorporated into the modelling methodology.	model as per ABGR, as was the case under the previous versions of the rating tools. As a result, the energy consumption of internal car parks will form a part of the greenhouse gas load of the project, as calculated during energy modelling, creating a direct incentives for reducing their energy demand. No separate credit will be introduced. No compensation points will be introduced.
13. Green Energy	*Green Star needs to introduce a credit that rewards on-site generation of energy.*	There is an in-built incentive for on-site generation through Ene-1, as there is no other way to achieve full points. Singling out this initiative will face the same criticism as the 'Stairs' and 'Centralised Energy Systems' credits of being in conflict with the push for holistic design.

ENE-3 'OFFICE LIGHTING POWER DENSITY'

It was suggested that the proposed maintenance factor of 0.7 is too low and will result in over-design.

GBCA Response: Agreed. The maintenance factor has been revised to 0.8.

ENE-4 'OFFICE LIGHTING ZONING'

It was recommended that the inclusion of a switch in each 100m2 zone should only be a provision due to switch positions being a tenancy issue, to avoid churn.

GBCA Response: As this credit rewards the base building owner/developer for facilitating lighting control, switching and sensors must be provided by the building in order to demonstrate compliance with the credit criteria.

ENE-5 'PEAK ENERGY DEMAND REDUCTION'

It was recommended that this credit be made 'Not Applicable' for carbon-neutral base buildings.

GBCA Response: A carbon-neutral base building (defined as producing no greenhouse gas emissions during operation, in accordance with the Green Star Energy Calculator) still reduces its peak energy demand, and deserves to be rewarded for it.

6. TRANSPORT

TRA-2 'FUEL EFFICIENT TRANSPORT'

It was indicated that carpooling is too operational an initiative to achieve recognition as a building attribute, especially if a building is speculative.

GBCA Response: While the building owner cannot oblige people to participate in carpool arrangements (or drive smaller vehicles, or take public transport to work), designating and identifying preferred parking spaces for carpooling and other fuel-efficient transport is an important step towards enabling such decision-making once the building is operational. Recognising and encouraging projects that reduce the demand for individual car journeys, such as by facilitating carpooling, is one of the primary objectives of the Transport category.

TRA-3 'CYCLIST FACILITIES'

It was suggested that lockers must always be provided within the changing facilities, otherwise security is jeopardised.

GBCA: Agreed.

TRA-4 'COMMUTING MASS TRANSPORT'

It was suggested that parts of the postal codes listed for the deemed-to-satisfy criteria may not comply with the Credit Criteria.

GBCA Response: Deemed-to-satisfy criteria often result in a degree of a compromise; their intent, however, is to simplify compliance in a way that is robust for the majority, if not 100% of cases.

7. WATER

WAT-1 'OCCUPANT AMENITY WATER'

As a '3 Star' rated fixture may not be equivalent to any specific A rating, it was suggested that all references to ratings be eliminated from the Credit Criteria, albeit retain in 'Additional Guidance for projects' reference.

GBCA Response: Agreed.

WAT-2 'WATER METERS'

It was questioned why Green Star no longer rewards projects for connecting sub-meters to the BMS.

GBCA Response: While BMS connection no longer achieves an additional point, sub-metering is only rewarded if a robust system of tracking is present; as such, where a BMS is present, connections must be demonstrated in order for the credit to be awarded.

WAT-3 'LANDSCAPE IRRIGATION'

It was suggested that 'water-efficient landscaping' sometimes uses more water than normal irrigation techniques.

GBCA: Agreed. No specific solution will automatically receive points. All projects must demonstrate a reduction potable water use by 90% from the reference case.

WAT-4 'HEAT REJECTION WATER'

It was indicated that in most cases, six cycles of concentration is average practice rather than a 50% improvement on average practice.

GBCA Response: Agreed. Six cycles of concentration will no longer be automatically deemed equivalent of 50% reduction in potable water consumption. Points will only be awarded for achieving the measurable reduction (50% and 90%) against the reference case.

As the Credit Criteria rewards the reduction in potable water consumption from the reference case, it was requested that the GBCA provide more guidance on how the reference case is to be established.

GBCA Response: Agreed. Rules for establishing the reference case have been provided in the Technical Manual.

WAT-5 'FIRE SYSTEM WATER'

It was suggested that this credit be applicable to buildings without a sprinkler system to reward alternative fire fighting systems.

GBCA Response: While such solutions may take place, this credit addresses one of the major identified uses of potable water in buildings, which is from sprinkler system testing. No change is necessary.

8. MATERIALS

A question was received as to whether or not the Green Star tool addresses material biodegradability? And whether it should, because natural fibres biodegrade more quickly.

GBCA Response: As this property is more relevant for tenancy fitout items than base building items, it will fall within the scope of the overall review of the Materials Category within Green Star – Office Interiors.

It was suggested that Green Star address design for durability.

GBCA Response: Durability is addressed within Green Star – Office Interiors. Functional aspects of durability should be considered by the designers, as Green Star is not intended to replace professional judgement about materials that are fit for purpose. However, environmental aspects of durability are being investigated by the GBCA for future improvement of Green Star.

MAT-1 'RECYCLING WASTE STORAGE'

A request that projects are not allowed to provide 'a letter from the recycling company' was made.

GBCA Response: Agreed and removed.

MAT-2 'BUILDING REUSE'

The 'NA' applicability for a development where existing GFA is less than 20% was questioned, and a request was made to remove this clause, in the belief that the merits of this criteria should be based on the amount retained regardless of the size of new development.

GBCA Response: The GFA references are intended to a) reserve this credit for projects where retention of the existing building was a viable option, rather than projects where a small building is being replaced with a significantly larger building, and b) to discourage the retention of a tiny shed in order to claim this credit (similar logic is applied to many other credits on the basis of a product's contribution to the total project value).

MAT-4 'SHELL & CORE OR INTEGRATED FITOUT'

It was suggested that points shouldn't be reduced to the shell and core credit, due to the significant environmental benefit of this credit.

GBCA Response: Points must be awarded for best practice, not regular practice; so the credit stays at two points.

It was suggested that this credit be named 'Integrated Fitout' for Green Star – Office Interiors.

GBCA Response: While this is logical, names of credits should be consistent among tools. The GBCA will take this into the consideration for ongoing improvement and streamlining of the Green Star suite of tools.

It was suggested that the shell-and-core makes Green Star ratings easier to achieve because it enables the owner/developer to transfer the burden of installation onto the tenant. It has also been suggested that the GBCA provide more guidance on how shell-and-core projects must document compliance for credits that are affected by this mode of delivery.

GBCA Response: The following has been clarified:

"Any space within a project delivered as a Shell and Core or Integrated Fitout will be assessed on the basis of:

The traditional scope of fitout provided by the base building (e.g. not furniture);

The fully documented design for Green Star – Office Design; and

The as-built/as-installed design for Green Star – Office As Built.

Where any component of the project is delivered as Shell and Core or Integrated Fitout, the General Section of the submission must include an area summary listing each area within the project and indicating whether it is delivered as a standard fitout, integrated fitout or shell and core. In addition, the mode of delivery must be clearly indicated on all documentation to allow for the Certified Assessors to confirm compliance.

For Green Star – Office Design Certified Rating, the fully documented design will be assessed regardless of how it is delivered. Where an integrated fitout is designed into the project, all documentation submitted for assessment, including tender drawings, must reflect the changes requested by the tenant(s).

For Green Star – Office As Built Certified Rating, the fitout (to the extent designed or provided by the base building) must demonstrate compliance with the Credit Criteria regardless how it is delivered. Any areas that remain as shell and core (i.e. have not been fitted out by the tenant) at the time of the submission cannot contribute towards compliance for this credit."

MAT-8 'SUSTAINABLE TIMBER'

It was recommended that one point be awarded for 50% and two points, for 95% compliance.

GBCA Response: Partially agreed. Credit Criteria have been revised to stipulate compliance for 95%, not 100%, of all timber in the project.

MAT-9 'DESIGN FOR DISASSEMBLY'

Reference was made to the difficulty in achieving this credit.

GBCA Response: Disagree, on the basis of international best practice.

MAT-10 'DEMATERIALISATION'

It was suggested that a minimum percentage threshold be established for ductwork, e.g. 85%, as even naturally ventilated buildings can have some ductwork, e.g. toilet exhausts, hybrid vent fans, thermal chimneys, computer rooms.

GBCA Response: Agreed; the threshold has been set at 95%.

It was suggested that building layout efficiency may not be a good measure of resource use efficiency (it will often merely rewards deeper floor plates).

GBCA Response: More adaptable floor plates are likely to better accommodate churn and increase the building's longevity. Constructive suggestions on better strategies for achieving that outcome are most welcome.

It was suggested that the 95% requirement for ceilings is too high because of acoustic requirements, 90% is suggested.

GBCA Response: As this is a new criterion, the GBCA is hesitant to reduce benchmarks. The GBCA will gladly consider robust argumentation of this suggestion, if offered, for ongoing improvement of Green Star.

9. LAND USE & ECOLOGY

ECO – CONDITIONAL REQUIREMENT

It was suggested that the GBCA reserve the right to have the final ruling on eligibility.

GBCA Response: Agreed. The following has been inserted: 'The GBCA reserves the right to provide the final ruling on a project's compliance with this Conditional Requirement.'

ECO-1 'TOPSOIL'

It was suggested that substituting topsoil from the site with other topsoil should be clearly not allowed.

GBCA Response: Agreed; this has been clarified to read as follows: "The importation of topsoil is not rewarded by this credit as it may compromise its ecological integrity. Projects that substitute topsoil from the site with other topsoil forfeit this credit."

An inquiry was made as to whether or not projects receive any points for topsoil covered by permanent surfaces.

GBCA Response: The GBCA acknowledges that it may be difficult to achieve this credit for 100% of topsoil, therefore the third bullet point in the Compliance Requirements has been revised to read

'95% of all topsoil (by volume) retains its productivity." Compliance Requirements clarify that "to remain productive, topsoil must not be covered by permanent hard surfaces."

ECO-2 'REUSE OF LAND'

It was suggested that the use of the term 'curtilage' contradicts the 75% threshold, as the credit cannot be claimed if unused portion of the site was less than 25%.

GBCA Response: Curtilage has been removed from the Credit Criteria. To be awarded the credit, projects must demonstrate that 75% of the site has been previously developed, as defined in the Additional Guidance

ECO-3 'RECLAIMED CONTAMINATED LAND'

It was suggested that the proposed definition of this credit reverses original intent. The option of encapsulation should be relaxed as the current proposal will not necessarily have greater environmental merit (because it shifts one site's problems to another site).

GBCA Response: The Green Building Council of Australia stands by its decision that encapsulation is only an acceptable form of remediation if there are technically no other remediation options. This ensures the site is completely remediated from contamination in the long-term.

ECO-4 'CHANGE OF ECOLOGICAL VALUE'

It was suggested that the GBCA reconsider relative allocation of weight between types of land use.

GBCA Response: Whenever relevant and robust third-party standards exist, Green Star aspires to reference those rather than establish its own. The following documents that form the basis for weighting between types of land use (and is still current):

Draft National Framework for Assessing Native Vegetation Condition (EA 2001) Decision Making Process;

National Strategy for the Conservation of Biological Diversity (DEST 1996);

State of the Environment Reports (Williams 2001, ASEC 1996 and 2001);

National Land and Water Resource Audit reports including the Australian Terrestrial Biodiversity Assessment 2002 and Australian Native Vegetation Assessment 2001;

Revision of Interim Biogeographic Regionalisation for Australia (IBRA) and Development of Version 5.1

Human Settlements Environmental Indicators for National State of the Environment Reporting (Newton et al. 1998); and

National Framework for the Management and Monitoring of Australia's Native Vegetation (NRMMC 2000).

ECO-1 'GREEN STAR – OFFICE AS BUILT CERTIFIED RATING', GREEN STAR – OFFICE INTERIORS V1.2

Why is a 6 star as-built considered the same as a 4 star as-built in the tenancy tool? There are currently only three as-built certified projects in Australia so shouldn't GBCA be encouraging this further?

GBCA Response: Credit Criteria has been expanded. It can be achieved with a Green Star – Office Existing Building (PILOT or final) Certified Rating as well as with a Green Star – Office As Built Certified Rating.

10. EMISSIONS

EMI-1 'REFRIGERANT ODP'

It was suggested that the removal of one point for compliance of 95% of the refrigerants is premature for the Australian market.

GBCA Response: Disagree. All projects certified by the time this change was proposed had achieved compliance for 100% of the refrigerants used. This and market assessment indicates that specification of zero-ODP refrigerants has become standard practice for the top 25% of the industry.

EMI-3 'REFRIGERANT LEAKS'

It was suggested that in direct expansion split system, pump down system must be able to be triggered both automatically and manually.

GBCA Response: Agreed, as long as the system is not fully manual.

It was noted that previously where an air-cooled chiller could achieve a point for "refrigerant recovery" but not "refrigerant leak detection" it can now not achieve any points for providing refrigerant recovery systems.

GBCA Response: To address the criticism, initiatives that address refrigerant leak detection and refrigerant recovery achieve individual points within this credit, i.e. the Credit Criteria has been de-coupled as per Green Star – Office v2.

EMI-4 'WATERCOURSE POLLUTION'

It was requested that the buffer zone definition be clarified.

GBCA response: Agreed; Additional Guidance has been provided within the credit.

It was suggested that bio-retention traps should be added to the list of dot points under additional guidance.

GBCA Response: Agreed.

EMI-5 'DISCHARGE TO SEWER'

The distribution of points was criticised because the first 40% reduction appears to be worth as much as the second 10%, even though it would be worth four times as much on the basis of environmental benefit.

GBCA Response: The first reduction threshold (30% over standard practice) is intended to identify what reduction would be expected in a best-practice development. From that initial threshold, the points are awarded based on a linear scale of further reduction, as follows:

1 point = 30% reduction;

2 points = 50% reduction;

3 points = 70% reduction; and

4 points = 90% reduction.

EMI-6 'LIGHT POLLUTION'

It was suggested that the term 'non-reflective' should be replaced with a maximum specular reflectance figure.

GBCA Response: Credit Criteria has been reworded to require that no light generated from the project is directed at any point in the sky without falling directly into a non-transparent surface.

It was suggested that the Technical Manual clarify that no light spill is allowed beyond boundaries regardless of the location/zone of the building in excess of that required by law.

GBCA Response: Agreed.

EMI-7 'LEGIONELLA'

It was suggested that the credit be revised to better reflect the intention of the credit to reduce legionella risk and not just to eliminate evaporative heat rejection, by stipulating that water temperature must not exceed 25°C in normal operation.

GBCA Response: The aim of this credit is to eliminate, rather than minimise, the risk of Legionellosis because Legionellosis is a serious and deadly illness associated with buildings. The proposed solution may still result in the onset of the problem and will rely on operational practices to negate its impact. Green Star assesses inherent building attributes; preventing the problem from ever occurring is a design issue. No change is deemed necessary.

11. INNOVATION

INN-2 'EXCEEDING GREEN STAR BENCHMARKS'

It was suggested that in some cases, such as Tra-3 'Cycling Facilities', exceeding the Green Star requirement may not have an environmental benefit.

GBCA Response: It has been clarified that only initiatives that clearly and measurably reduce the environmental benefit qualify for this credit and only if the highest threshold within the credit is set below 95%.

The following feedback, while valuable to Green Stars, fell outside the scope of the initial changes proposed during the Public Review Period. The GBCA has taken note of these suggestions and is investigating their merit and implications as a part of the ongoing improvement of Green Star.

IEQ-2 'AIR CHANGE EFFECTIVENESS'

It was recommended that one point be awarded for 50% NLA and two points be awarded for 95% NLA.

IEQ-4 'DAYLIGHT'

Using the definition of "usable daylight" would be a further improvement as this puts an upper limit to daylight as you can have too much daylight in some offices.

It was recommended to use conventional design methodology of measuring at 9am, midday and 5pm for equinox and solstices as an alternative to the Daylight Factor measure.

IEQ-15 'MOULD PREVENTION'

Humidity percentages should be re-examined as the criteria currently required is too tight in practice for many systems.

ENE-5 'OFFICE LIGHTING POWER DENSITY'

It was suggested that lighting power density be calculated on a per-square-meter basis, rather than on per-100-Lux basis, as the current approach rewards lighting design that can be inferior in its IEQ implications. As this approach is used to demonstrate compliance with the BCA, this would also simplify generation of evidence for submissions.

ENE-7 'PEAK ENERGY DEMAND REDUCTION'

It was suggested that this credit should reward maximum demand on amps/m2 basis and the amount of energy purchased for the building, as this would allow better management.

TRA-2 'FUEL EFFICIENT TRANSPORT'

It was suggested that 'fuel efficient' be defined on the basis of carbon dioxide emissions per kilometre travelled.

This credit should also take into account the type of fuel and fuel efficiency of the transport vehicle as well as its size.

MAT-1 'RECYCLING WASTE STORAGE'

It was suggested that Green Star drop requirements for proximity to the lift core, as waste management personnel will carry out their duties regardless.

MAT-6 'STEEL'

It was suggested that Green Star should reward the total mass of post-consumer recycled content as a proportion of all structural steel used, rather than set a proportion requirement for each product as is currently the case.

MAT-9 'DESIGN FOR DISASSEMBLY'

Design for durability and increased lifecycle (extend lifecycle of building) should be considered.

MAT-10 'DEMATERIALISATION'

It was suggested that the finishes section should include wall surfaces in addition to floors and ceilings.

ECO-4 'CHANGE IN ECOLOGICAL VALUE'

I*t was suggested that the GBCA reconsider the thresholds for point allocation within the Change in Ecology Calculator, as it is unnecessarily difficult to achieve more than two points.*

EMI-2 'REFRIGERANT GWP'

It was suggested that the GWP be increased from 10 to 15 to align with the EU limit as well as accommodate hydrocarbons (still natural refrigerants) suitable for drop-in replacements for CFCs, HCFCs and HFCs.

12. CONCLUSION

The GBCA is confident that Green Star – Office Design and Green Star - Office As Built v3 and Green Star – Office Interiors reflect stakeholder input to the best degree possible at the time. However, no Green Star rating tool can be perfect as the industry is constantly changing. As further research and stakeholder consultation takes place to further improve Green Star rating tools, the GBCA strongly welcomes constructive feedback; further details can be found at http://www.gbca.org.au/green-star/stakeholder-engagement-feedback/.