

## Outcomes of Stakeholder Feedback on the Green Star – Education PILOT

28<sup>th</sup> August 2008

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The Green Star – Education PILOT rating tool was developed by the Green Building Council of Australia (GBCA), in conjunction with its Technical Working Group (TWG) to facilitate environmental assessment of Education buildings. The tool development process includes a period which allows for public review and comment. The PILOT process also includes up to six buildings undergoing a Green Star assessment under the PILOT version of the tool.

The GBCA ensures that the public review period is transparent through a formal Stakeholder Feedback process; this can be viewed at [www.gbca.org.au](http://www.gbca.org.au). The process includes publishing this Stakeholder Feedback Report. This document provides a summary of all feedback on the tool that was received in writing from stakeholders and PILOT projects. For each item of feedback, the GBCA's response is detailed. As part of the process, any comments received after the public review period closed are considered for further improvement of future versions of the Green Star rating tool.

The feedback has been organised according to the Green Star categories. The feedback and the responses are provided on the following format:

*It was suggested that.... (1)*

GBCA Response: Agreed, the...

The submitted feedback is provided in *italics*, followed by a number in brackets that identifies each submitter; this code is for the GBCA and submitter's own reference only. This is followed by the GBCA response to the feedback.

## Management

### Man-2 'Commissioning Clauses'

*It was suggested that the requirements are adequate for larger schools, however, funding in smaller schools may not allow for such provisions (10).*

*It was also suggested to differentiate between requirements for simple, low-tech primary/secondary schools and tertiary institutions (9).*

GBCA Response: Cost should not be a reason to exclude parts of a credit. Commissioning will be applicable to all projects regardless of size. The requirements are aligned with the Green Star – Office v3 rating tool.

*It was suggested that NEBB should be deemed equivalent to ASHRAE and ASHRAE/CIBSE. (11).*

GBCA Response: NEBB is an American Standard, which may be included in the Green Star – Education rating tool once the GBCA has been presented with evidence demonstrating that NEBB is of equivalent standard to ASHRAE and CIBSE.

### Man-3 'Building Tuning'

*It was suggested that the requirements are adequate for larger schools, however, funding in smaller schools may not allow for such provisions (10).*

*It was also suggested to differentiate between requirements for simple, low-tech primary/secondary schools and tertiary institutions (9).*

GBCA Response: Cost should not be a reason to exclude parts of a credit. The same issue arises for small commercial buildings. Commissioning will be applicable to all projects regardless of size. The requirements are aligned with the Green Star – Office v3 rating tool.

### Man-4 'Independent Commissioning Agent'

*It was suggested that the requirements are adequate for larger schools, however, funding in smaller schools may not allow for such provisions (10).*

*It was also suggested to differentiate between requirements for simple, low-tech primary/secondary schools and tertiary institutions (9).*

GBCA Response: Agreed. For Primary and Secondary schools, an option has been provided for the Independent Commissioning Agent to be replaced by an in-house Facilities Manager (FM) with suitable experience to provide commissioning advice to the project team from the beginning of schematic design. If there is no in-house FM, the project must adhere to Green Star – Office v3 credit requirements.

*It was suggested to remove the requirement for an independent commissioning agent to be present during the design process (11).*

GBCA Response: Commissioning is an important part of a green building project. Commissioning advice during the design process will contribute to useful commissioning results.

The credit is to be revised to align with the Green Star - Office v3 rating tool being:

One point is awarded where an independent commissioning agent has been appointed to:

- Provide commissioning advice to the building owner and the design team; and
- Monitor and verify the commissioning of all building systems."

### Man-5 'Building Guides'

*It was suggested to increase the number of points available due to the increased workload required and the importance of the credit (9).*

GBCA Response: The additional requirement for a Building Maintenance Plan justifies an increase in number of points available. The number of points has been increased from one to two.

*It was suggested that a good Building User's Guide should be prepared from the beginning of commissioning up to hand over, rather than writing something before the building is finished (10).*

GBCA Response: Agreed, the compliance requirements in the PILOT version which allowed for a contractual agreement has been removed. A draft version of the building guides is accepted for design compliance.

**Man-6 'Environmental Management'**

No feedback received.

**Man-7 'Waste Management'**

No feedback received.

**Man-8 and Man-9 are not included in the Green Star – Education v1 rating tool.**

**Man-10 'Learning Resource'**

*It was suggested that a definition of initiative should be included in the credit (9).*

GBCA Response: Agreed, for the purpose of this credit, an initiative is defined as an actual building attribute that demonstrates an environmental benefit relevant to a Green Star credit. Signage is not an initiative in itself, it is a form of education material, and not a building attribute. Each initiative must relate to a Green Star credit e.g. potable water reduction, re-used materials, ecological value of the site etc.

**Man-11 'Maintainability'**

*It was suggested that for low-tech buildings, a teacher on staff who has attended a training course which would give them the capacity to manage the maintenance of simple buildings; only the largest and wealthiest of secondary schools could afford a fulltime qualified facilities manager with ESD experience (9, 10, 11).*

GBCA Response: Agreed. The credit has been reworded to allow compliance to be demonstrated by the appointment of the person responsible for maintenance, a suitably qualified maintenance staff member, or a qualified facilities manager.

## Indoor Environment Quality

### IEQ-1 'Ventilation Rates'

No feedback received.

### IEQ-2 'Air Change Effectiveness'

*It was suggested that an alternative methodology should be included since the CFD methodology is prohibitive to some projects (11).*

GBCA Response: The deemed-to-satisfy criteria in the Green Star – Office v3 rating tool has been included for the office component of the Green Star – Education v1 rating tool.

*It was suggested that Natural ventilation should refer to 90% of the UFA to be consistent with IEQ-1 'Ventilation Rates (9).*

GBCA Response: No change. The credit requires that 90% of each space achieve the Credit Criteria. This aligns with the requirements for IEQ-1, being "The percentage improvement on AS1668.2-1991 must be achieved for 95% of all spaces within the UFA, not as an average across the overall UFA of the project." Both IEQ-1 and IEQ-2 will be revised to align with the Green Star – Office v3 rating tool.

### IEQ-3 'CO<sub>2</sub> Monitoring and Control and VOC Monitoring'

*It was suggested that the high tech approach in the credit is unlikely to occur in primary and secondary buildings (10).*

GBCA Response: Green Star aims to drive the adoption of sustainable building practices by effecting change in the practices of the top 25% of the market, rather than for all buildings. While it is acknowledged that for differing projects some credits will be more achievable than others, all compliance options must ensure the Aim of the Credit is achieved.

### IEQ-4 'Daylight'

No feedback received.

### IEQ-5 'Thermal Comfort'

*It was suggested that a review of the achievability for naturally ventilated primary/secondary schools was necessary. A PMV range of up to -1.0 to +1.5 for a naturally ventilated space with occupant control is more achievable. Suggest a 3-point credit with three levels of compliance (9, 10, and 11).*

*The following is suggested to reduce the bias towards natural ventilation and to better reward projects for efforts towards improving thermal comfort. The following Predicted Mean Vote (PMV) levels, calculated in accordance with ISO7730 (or equivalent using Draft ASHRAE Comfort Standard 55 and "Developing an Adaptive Model of Thermal Comfort and Preference - Final Report on ASHRAE RP884") must be achieved during Standard Hours of Occupancy and using standard clothing, metabolic rate and air velocity values for 98% of the year:*

- 2 point = PMV levels are between -3 and +3;
- 3 points = PMV levels are between -2 and 2;
- 4 point = PMV levels are between -1 and +1; and
- 5 points = PMV levels are between -0.5 and 0.5.

*It was also suggested that a better balance between natural ventilation and thermal comfort should be provided. The purpose of schools is to allow children to learn. Education is a substantial investment for the economy and the environment. There is an acknowledged link between improved thermal comfort (and access to fresh air) and increased productivity, or learning outcomes (10, 11).*

GBCA Response: Awarding points for a PMV level of -3 and +3, would be rewarding poor practice. The PMV scale goes from +3(hot) to -3(cold). The purpose of this credit is to encourage the provision of high levels of thermal comfort, rather than to measure the level of thermal comfort

within the space. Acceptability limits as a compliance alternative for naturally ventilated buildings have been included.

The GBCA wishes to clarify that fresh air and thermal comfort are addressed independently within Green Star. Fresh air is addressed in IEQ-1 'Ventilation Rates', and thermal comfort within this credit. Both can be achieved with either mechanical, mixed-mode or naturally ventilated projects.

The Credit Criteria and compliance options for naturally ventilated spaces have been revised for the Green Star – Education v1 rating tool as follows:

Up to two points are awarded where high level of thermal comfort is achieved for the entire nominated area through any combination of the below:

Where naturally ventilated buildings achieve the credit criteria for IEQ-10 'Individual Comfort Control', up to two points are awarded if the Accessibility Limits of ASHRAE Standard 55-2004 are achieved during Standard Operating Hours of Occupancy for 98% of the year:

- One point for internal temperatures within 80% Acceptability Limit 1; and
- Two points for internal temperatures within 90% Acceptability Limit 1.

Note that an alternative compliance option for naturally ventilated spaces has been introduced as per the Green Star – Office v3 rating tool, i.e. Adaptive Thermal Comfort Methodology, and a deemed-to-satisfy criteria that does not require modelling also has been introduced.

*There are no schedules for weekends and holidays. The tool forces us to account for all of the hot days in January when we know a school will be unoccupied. This penalises the energy score but more importantly could force schools to design larger air-conditioning systems than are necessary to maintain a given comfort level. Or the extra hours of overheating in January may force a design to adopt air conditioning to ensure they can achieve the thermal comfort criteria of IEQ-9, even though they will not be in occupation in January. There should be some way to take into account different occupancies for the Energy and Thermal comfort credits. (11).*

GBCA Response: Many education facilities are used for other purposes outside the regular school and university term. The dates and times are operational, and dependent on the operational pattern of the particular facility; this may vary between different facilities. Green Star assess building attributes, operational issues are outside of the Green Star scope.

#### **IEQ-6 'Hazardous Materials'**

No feedback received.

#### **IEQ-7 'Internal Noise Levels'**

*It was suggested that Rw should replace the STC rating. The STC rating is a valid descriptor for speech sound insulation between spaces, and has previously been used in the Building Code of Australia (BCA96). However, the BCA 2004 adopted the descriptor Rw to assess sound insulation between spaces in lieu of STC. In general terms the Rw descriptor is the ISO (European) equivalent of STC, which is an ASTM (American) descriptor.*

*The use of Rw by the BCA is consistent with European acoustic performance standards where Rw is used extensively. We also understand that New Zealand will be adopting Rw in the future revision of its Building Code performance criteria. Corresponding to this change by the BCA technical information, such as partition performance ratings, available in the market place is now generally expressed in terms of Rw. Given this widespread use of Rw, we would consider it worthwhile to adopt the same descriptor for the Green Star – Education criteria in lieu of STC (4).*

GBCA Response: Agreed, Rw has replaced STC.

*It was suggested that the provisions for operable walls should be clarified (11).*

GBCA Response: Modelling is done on the base building, not the fitout. Internal partitions need only be considered if they are a base building provision, and if they are structural walls of internal offices - most projects can assume open-plan layout. Tenant installed partitions are not to be included.

*It was suggested that it is unlikely that this credit can be achieved by schools with open flexible learning spaces and that the credit should be aligned with current school design trends for more open planning and changing pedagogies (9, 11).*

GBCA Response: Modelling is done on the base building not the fitout. Internal partitions need only be considered if they are a base building provision, and if they are structural walls of internal offices - most projects can assume open-plan layout. Tenant installed partitions are not to be included.

*It was suggested that it should be clarified if the credit was 'Not Applicable' if the building has no services (9).*

GBCA Response: In naturally ventilated buildings, unless fans are used (for mechanically assisted natural ventilation), it is assumed that mechanical ventilation will not be an issue, therefore, in this instance the Building Services Design point refers to hydraulic services only. All modelling must be carried out with ventilation openings open.

#### **IEQ-8 'Volatile Organic Compounds'**

No feedback received.

#### **IEQ-9 'Formaldehyde Minimisation'**

No feedback received.

#### **IEQ-10 'Mould Prevention'**

No feedback received.

#### **IEQ-11 'Daylight Glare Control'**

No feedback received.

#### **IEQ-12 'High Frequency Ballasts'**

*It was suggested that the mercury in the efficiency fluorescent fittings should be considered in this credit (10).*

GBCA Response: This issue does not relate to the Aim of this credit. This feedback will be considered in our annual general feedback review and included in our ongoing revision of the Materials category.

#### **IEQ-13 'Electric Lighting Levels'**

*It was suggested to revise to the appropriate AS recommendations for the education sector - the current levels are based on office lighting levels (10).*

GBCA Response: It is emphasised that the modelling should be done for the base building; not for the fitout. The current lighting requirements are appropriate for such modelling.

*It was suggested that when using 1x54W T5 fittings, the area that is directly underneath the luminaire has a greater Lux level than what is recommended in AS1680. The area as a total exceeds 95% of the UFA. Hence this point in the credit is difficult to achieve. If 1x28W T5 fittings (Lower output fittings) were used in the design this point could be achieved, but using at least 30% more material plus additional embodied energy (9).*

GBCA Response: It is emphasised that the modelling should be done for the base building; not for the fitout.

#### **IEQ-14 'External Views'**

No feedback received.

## Energy

### 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 position taken, and outlines any corrective action.

Feedback	GBCA Response
<p><i>There is no adjustment of the benchmarks for each climate zone (11).</i></p>	<p>Agreed, the Green Star – Education Energy Calculator does not provide adjustments in benchmarks for Greenhouse gas emissions for different climate zones.</p> <p>The aim of the Energy category in the Green Star tools is to reduce the total Greenhouse gas emissions from buildings, regardless of their location.</p> <p>The electricity benchmark was calculated by finding the weighted average of the emissions for consumption of electricity generation. The weightings came from the percentage of contributions to national emissions.</p> <p>The gas benchmark was calculated using the natural gas combustion emission factors for small users. Small users were chosen to set the benchmark as most buildings will be classified as small gas users (&lt;100,000GJ per annum). The weighted average was found using percentage of contributions to national emissions.</p>
<p><i>The electricity green house gas coefficient is the same for each state (NEMMCO) while the gas coefficient changes for each state. Suggest the tool be modified to adopt the ABGR methodology for handling benchmarks and green house gas coefficients (using the AGO figures) (11).</i></p>	<p>The Green Star – Education Energy Calculator uses greenhouse gas emission coefficients from the Australian Greenhouse Office (AGO). These coefficients for electricity and gas vary between states; the greenhouse gas benchmarks are however the same throughout the states.</p> <p>Because of the variations in the states' greenhouse gas coefficients, projects in some states will have to perform better, and engage in more climate-sensitive design, in order to achieve the Conditional Requirement and points within the Ene-1 credit. While projects in Victoria can be seen to be 'disadvantaged', that disadvantage can no longer be attributed to calculation methodology, but merely to the quality of its energy source (brown coal).</p>
<p><i>There are no schedules for weekends and holidays. The tool forces us to account for all of the hot days in January when we know a school will be unoccupied. This penalises the energy score but more importantly could force schools to design</i></p>	<p>The Green Star – Education v1 rating tool assesses building attributes - assuming that the Education building is empty during the hottest weeks of the year is an assumption based on operational profiles and might not be true for all buildings. An example is universities with summer school programmes.</p>



<p><i>larger air-conditioning systems than are necessary to maintain a given comfort level. Or the extra hours of overheating in January may force a design to adopt air conditioning to ensure they can achieve the thermal comfort criteria of IEQ-9, even though they won't be in occupation in January. There should be some way to take into account different occupancies for the Energy and Thermal comfort credits (11).</i></p>	
<p><i>The operational profiles don't include a profile for store areas. If there were one it should include lighting and exhaust profiles. Similarly - toilets, tea rooms, staff rooms in Universities, and Stairs (11).</i></p>	<p>As per the Green Star – Education Energy Calculator Guide: Office Administrative Space – These spaces include offices, meeting rooms and conference facilities.  Common Spaces – these spaces include foyers, amenities, passages, corridors, store rooms, stairs and circulation.</p>
<p><i>Occupancy profiles, if used for outside air, operate outside of plant operation hours. This causes additional fan load in the model due to outside air fans having to operate (11).</i></p>	<p>The intent of the methodology used in the Green Star – Education Energy Calculator is to provide a fair assessment of buildings against a set benchmark. The intent is not to calculate the exact greenhouse gas emissions from the building.</p>
<p><i>The lighting energy consumption profile for wet labs has an error - the time adds up to 26 hours (11).</i></p>	<p>The Green Star – Education Energy Calculator Guide has been revised with clarifications made, and revised examples included where required.</p>
<p><i>Car parks – revise HVAC energy clause – exhaust, cut and paste error? (11)</i></p>	<p>The Green Star – Education Energy Calculator Guide has been revised with clarifications made, and revised examples included where required.</p>
<p><i>Occupant densities: P27 says 1 person per 12m<sup>2</sup> in a classroom and p44 says 9m<sup>2</sup> per person. Both of these are too low. It is usually 1-2m<sup>2</sup> per person (11).</i></p>	<p>The occupancy rates for classrooms are determined as per the Australian standard AS1668.2 and are 12 people per m<sup>2</sup> for primary and high schools, and 9 people per m<sup>2</sup> for universities.</p>
<p><i>DHW example on page 43 of the guide (appendix E) is confusing. How did they arrive at the figure of 6760 and how do you use the 4th column? (11)</i></p>	<p>The Green Star – Education Energy Calculator Guide has been revised with clarifications made, and revised examples included where required.</p>
<p><i>The calculator should be reviewed in accordance with the XX issued CIRs. In particular, the difficulty in achieving full points in a naturally ventilated building with no cooling should be reviewed (i.e. adjustment of benchmark and scale or calculation methodology).</i></p> <p><i>Clarity on what should and shouldn't be included in the energy calculation needs</i></p>	<p>Communication with the submitter is currently ongoing; further information about this important issue will be submitted. Required clarifications and adjustments will be made based on assessment of the additional information.</p> <p>The Green Star – Education Energy Calculator Guide has been revised with clarifications made, and revised examples included where required.</p>

<p><i>to be included in the Energy Calculation Guide to ensure equity between project approaches.</i></p> <p><i>The calculation method for lifts is unrealistic and severely penalises projects with lifts, even if they are not for regular use.</i></p> <p><i>In our opinion Climate and CO<sub>2</sub> emissions correction should be considered.</i></p> <p><i>The treatment of ceiling fans which are a common component of many public schools should be considered carefully and detailed in the guidance material (9).</i></p>	<p>The calculation method for lift energy has been revised within the Green Star – Education Energy Calculator Guide.</p> <p>See response above.</p> <p>Guidance on ceiling fans is included with the Green Star – Education Energy Calculator Guide.</p>
<p><i>An alternative spreadsheet tool for smaller (less well funded) projects might have been a good outcome. Could a DTS base case be established that would score 5 points? (11)</i></p>	<p>The GBCA considers a credit independently of cost. The credits are developed based on environmental outcomes.</p>

### **Ene-2 ‘Electrical Sub-metering’**

*It was suggested that extensive sub-metering is required to meet the aim of the credit, for low technology primary and secondary schools the sub-metering will merely add cost and very little value (9).*

GBCA Response: The GBCA is continually looking for means to decrease the costs associated with the compliance requirements of Green Star credits. Any suggestions from industry are welcomed; however the GBCA develops credits based on environmental impact, not on cost. It is noted that the same issue arises for small commercial buildings.

### **Ene-3 ‘Peak Energy Demand Reduction’**

*It was suggested that it is too difficult to achieve the credit for buildings with heating only (high heating required). Depending on the aim for this credit, buildings with no cooling could achieve this without calculations (11).*

GBCA Response: Building with no cooling systems will still have a peak energy demand; hence the credit is still relevant. The credit has been revised as per the Green Star - Office v3 rating tool:

*It was suggested that it should be clarified whether the average for comparison is over 24 hours or the whole year (11).*

GBCA Response: The predicted annual peak demand shall be calculated in accordance with AS3000. The credit has been revised as per the Green Star - Office v3 rating tool:

*It was suggested that maximum demand could be calculated and measured in kVA/m<sup>2</sup> (11).*

GBCA Response: As per the Technical Manual shall the maximum demand be calculated in accordance with AS3000. The Peak Energy Demand Reduction should be reported in percentage reductions.

### **Ene-4 ‘Lighting Zoning’**

*It was suggested that signage and education could have a greater impact than automation for lower schools (9).*

GBCA Response: The Green Star – Education rating tool assesses building attributes - education programs fall outside the Green Star scope.

Ene-5 and Ene-6 are not included in the Green Star – Education v1 rating tool.

**Ene-7 'Occupied Areas'**

No feedback received.

**Ene-8 'Stairs'**

No feedback received.

**Ene-9 'Efficient External Lighting'**

*It was suggested that it was too difficult to achieve the standard vertical plane Lux levels and that the credit should require compliance with the horizontal plane calculation requirement from AS 1158 rather than the vertical (9).*

GBCA Response: The vertical requirements ensure adequate light levels that provide for safety. It is the vertical levels that are the design challenge. The requirement for vertical and horizontal levels will be kept in the tool.

**Ene-10 'Centralised Energy Systems'**

*It was suggested that the credit should be 'Not Applicable' in the clause for natural ventilation (9, 10).*

GBCA Response: Agreed, the credit is not applicable when is naturally ventilated, the campus contains less than two buildings, or no two buildings are within 200m of each other (for refurbishment projects only), this credit is 'Not Applicable' – type "na" in the 'Number of Points Achieved' column.

## Transport

### General

*It was commented that 4 points are available for bicycle use, 5 for public transport and 3 for limiting car usage, only 1 point (Tra-6) actually encourages walking.*

GBCA Response: Noted, considering the current state of the market; transportation initiatives needs to be encouraged. The feedback will be considered for future versions of the Green Star – Education rating tool.

### Tra-2 'Provision of Car Parking'

*It was suggested no local government guidelines for quantity of car parks for schools existed in SA (1).*

GBCA Response: Where no local government guidelines exist, please submit a Credit Interpretation Request (CIR) to substantiate an argument for equivalent yet alternative compliance with the credit criteria.

*It was suggested that the credit criteria is unrealistic for schools where car parks are provided based on staff numbers and staff are expected to move from school to school at short notice (11).*

GBCA Response: The credits in Green Star are based on environmental benefit, rather than ease of attainment. The credit will remain in the Green Star – Education v1 rating tool.

### Tra-2 'Fuel Efficient Transport'

*It was suggested that it is prescriptive to define hybrid vehicles as advantaged over efficient turbo diesels. It would be better to reference a separate car sustainability rating or fuel consumption/CO<sub>2</sub> emission (9).*

GBCA Response: The requirements will remain the same, and in line with other Green Star tools until the GBCA can assess Fuel Efficiency scales and adapt one relevant to the Australian market.

*It was suggested that since there is no restriction on number of small car parks that can be provided; more car parks than required could be provided (1).*

GBCA Response: Provision of car parking is addressed in Tra-1. This credit solely addressed the use of fuel efficient transport.

### Tra-3 'Cyclist Facilities'

*It was suggested that the covered walkway requirement for external amenities should be reconsidered (9).*

GBCA Response: The credit has been updated as per the Green Star – Office v3 rating tool and this technical clarification was included. The requirement for weather protected walkways is excluded from the tool.

*It was suggested that the numbers required are not appropriate for this building type (10).*

GBCA Response: No details were provided on whether the figures given were too high or too low, hence, the GBCA cannot address this feedback.

*It was suggested that the Compliance Requirements for visitors should be clarified (11).*

GBCA Response: Visitors bicycle parking is not included in the Green Star – Education v1 rating tool. All references to visitor bicycle parking in the tool have been removed.

### Tra-4 'Commuting Mass Transport'

*It was suggested that the development of a School Travel Plan designed to support families to change to more sustainable travel such as walking, cycling, and using public transport should be included in the credit criteria (10).*

GBCA Response: Travel Plan introduced as requirement in Tra-6 'Transport Design and Planning'.

*It was suggested that most regional schools are served by one bus route operated by a local private bus company and the frequency of service is insufficient to score a point using the calculator.*

- *If more than 20% of students are walking or cycling the project school would receive 0 out of a possible 5 points.*
- *Suggest amending credit to allow for a pro-rata transportation of student e.g. 65% would equate to 3 points (i.e.  $65\%/80\% \times 4 \text{ points} = 3 \text{ points}$ ) (10).*

GBCA Response: The weightings in the Commuting Mass Transport have been revised so that trains are equal to buses. The current deemed-to-satisfy approach is kept as is. The pro-rata suggestion is rejected due to the operational uncertainties.

*It was suggested that consideration should be given to how the credit relates to school zoning and where users come from, i.e. locals walking to school vs. a school with a larger zone. Points are given purely for location - easily achievable for an urban school located near a train or tram line. There is too much emphasis on 'transport' and not enough credit for walking to school (10).*

GBCA Response: Some Green Star credits are more challenging in an urban setting, some Green Star credits are more challenging in a rural setting. Alternative transportation initiatives should be encouraged. The feedback will be considered for future versions of the Green Star – Education rating tool.

#### **Tra-6 'Transport Design and Planning'**

*It was suggested that the credit is too easy to achieve especially when there is no design influence on public routes (3).*

GBCA Response: Your feedback is noted. The credit was discussed by the TWG and the decision was taken to include the additional requirement for a Travel Plan.

*It was suggested that the requirement for night time lighting for schools should be removed (10).*

GBCA Response: The lighting requirements for night time have been kept as it is there for safety reasons.

*It was suggested that it should be clarified if roadways/footpaths are included in the credit (1).*

GBCA response: The Credit Criteria stipulates that there must be at least one dedicated pedestrian route onto and off the site. Therefore, unless the route is not dedicated to pedestrians, it would not meet the Credit Criteria.

## Water

*It was suggested that bore water for non-potable water should be included, especially in areas where aquifer recharge is increasingly implemented (7)*

GBCA Response: The GBCA notes that in some regions, the use of bore water can be beneficial; however, as this cannot be adopted nationally, it cannot be included in Green Star. Should a project wish to demonstrate equivalent compliance for a specific project, they may submit a CIR.

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

No feedback received.

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

*It was suggested that the extensive metering may not serve an environmental purpose in a school with low maintenance requirements (9, 10).*

GBCA Response: This credit is for a single point, and has a clear environmental benefit. Credits must be awarded based on environmental merit, not ease of attainment or cost, and any proposed amendments must clearly reflect the Aim of Credit.

*It was suggested that this credit requires another High Tech solution that most primary or secondary schools not will be able to achieve, since they might not have a BMS (10).*

GBCA Response: Cost should not be a reason to exclude parts of a credit. The same issue arises for small commercial buildings.

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

No feedback received.

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

No feedback received.

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

*It was suggested that synergies with rainwater tanks with a summer-only testing regime or flushing into landscaping should be considered; otherwise retention tanks are mostly unused (9).*

GBCA Response: Agreed, The requirements of the Green Star – Education v1 rating tool are as follows: "Temporary water storage facilities for fire systems must have the capacity to store test water at any time of the year and cannot share any component of the rainwater tank capacity that is used in any calculations for other water credits. If the storage tank designated for collection and storage of fire system water is simultaneously used for rainwater or recycled water storage, it must be designed (e.g. sized sufficiently) to avoid overflow of collected water into the sewerage system or the watercourse."

### **Wat-6 'Potable Water Use in Labs'**

*It was suggested that the applicability for primary/secondary schools should be reviewed (9).*

GBCA Response: The credit is 'Not Applicable' if less than 10% of total potable water use is devoted to laboratories.

## Materials

### General

*It was suggested that a credit for timber structure over steel should be included regardless of FSC (embodied energy) (9).*

GBCA Response: The GBCA is currently reviewing the Materials category for the entire suite of rating tools. Embodied energy is one of many issues that are being considered in this review. Green Star credits are based on non-prescriptive principles, awarding points for timber over steel would be prescriptive.

### Mat-1 'Recycling Waste Storage'

*It was suggested that compost should be rewarded if treated on-site (9).*

GBCA Response: The credit criteria has been revised to include "The Certified Assessor(s) will not award this credit unless the recycling waste storage can effectively serve all building uses and occupants and is sufficiently sized to accommodate the storage of the following recyclables, at a minimum: paper, glass, plastics, metals and organic (compost) materials."

*It was suggested that this credit should enable projects to contractually provide off-site source separation of recyclable waste products (e.g. via a Materials Recovery Facility) (7).*

GBCA Response: This credit has been revised as per the Green Star – Office v3 rating tool, and includes information on how to assess external amenities, as follows:

"As Green Star assesses inherent attributes of buildings, external amenities can only be rewarded if they are provided for the life of the building to the same degree of service and certainty as internal facilities. As a result, the following applies to amenities (such as recycling waste storage) that are located on separate premises and not within the assessed building:

- The scope of assessment is not extended beyond the assessed building, i.e. the building within which the amenities are housed does not need to meet the Credit Criteria of any claimed credits; only the amenities assessed against the Credit Criteria of the credit towards which they contribute;
- The assessed building and the amenities are under the same ownership and cannot change ownership separately (i.e. they are on the same title or equivalent);
- The assessed building and the amenities are under the same management and cannot change management separately (e.g. the same facility management to ensure recycling waste storage is processed as designed);
- The recycling waste storage facilities are in close proximity to the assessed building and the access route is clearly marked and sign-posted, convenient, guaranteed, secure and without a step change;
- The amenities are completed by the date of practical completion of the assessed building; and
- The amenities fully meet the Credit Criteria and are documented in strict accordance with the Technical Manual, including weather protection."

*It was suggested that campus style buildings where a facility is built in relation to a number of buildings around a site should be considered (10).*

GBCA Response: This can be assessed as per the Technical Clarifications on the website (listed in the general section under 'Interdependent Projects').

### Mat-2 'Building Re-use'

*It was suggested that it should be clarified if points are awarded automatically for major refurbishments (1).*

GBCA Response: The Credit Criteria outline must be met to achieve the credit. The credit will be awarded if a major refurbishment meets the Credit Criteria and adequate documentation is submitted.

### Mat-3 'Recycled-Content & Re-used Products and Materials'

No feedback received.

#### **Mat-4 'Concrete'**

*It was suggested that the credit is not achievable, since;*

*No reclaimers in rural Victoria and suppliers will not guarantee the quality of concrete if crushed concrete is used.*

*No suppliers provide 30% fly ash and many technical problems are associated with these technologies.*

*It was suggested that the environmental value of this credit is limited since fly ash is transported from Queensland to Victoria.*

*It was suggested that the compliance requirement should be based on the type of concrete which makes up the majority of the concrete in the building (10).*

GBCA Response: The GBCA is currently engaging with the stakeholders in this industry. The engagement process aims to refine this credit. The process concerns all the Green Star rating tools; the Green Star – Education rating tool will be updated accordingly when the stakeholder engagement process, proceeds. The credit is in the meantime updated to be in line with the Green Star – Office v3 rating tool:

The credit will be revised to align with the Green Star – Office v3 rating tool, this being:

Three points are available as follows:

Up to three points are available where the project has reduced the absolute quantity of Portland cement, as an average across all concrete mixes, by substituting it with industrial waste product(s) or oversized aggregate as follows:

- For one point, 30% for in-situ concrete, 20% for pre-cast concrete and 15% for stressed concrete;
- For two points, 60% for in-situ concrete, 40% for pre-cast concrete and 30% for stressed concrete.
- An additional point is awarded where:
  - o At least one of the above points is achieved; and
  - o 20% of all aggregate used for structural purposes is recycled (Class 1 RCA in accordance with HB155-2002) or slag aggregate; and
  - o No natural aggregates are used in non-structural uses (e.g. building base course, sub-grade to any car parks and footpaths, backfilling to service trenches, kerb and gutter).

If the material cost of new concrete represents less than 1% of the project's contract value, this credit is 'Not Applicable' and is excluded from the points available to calculate the Materials Category Score.

*It was suggested that different types of concrete should be defined (6).*

GBCA Response: Agreed, definitions included in Technical Manual.

#### **Mat-5 'Steel'**

*It was suggested that the credit is unachievable - none of the larger structural sections of steel have anything better than about 5% post consumer content (10).*

GBCA Response: The GBCA is currently engaging with the stakeholders in this industry. The engagement process aims to refine this credit. The process concerns all the Green Star rating tools; the Green Star – Education rating tool will be updated accordingly when the stakeholder engagement process, proceeds. The credit is awarded based on environmental benefit, not ease of attainment.

#### **Mat-6 'PVC Minimisation'**

*It was suggested that the credit probably is unachievable given PVC in electrical conduits (10).*

GBCA Response: The credit is awarded based on environmental benefit, not ease of attainment.

**Mat-7 'Sustainable Timber'**

*It was suggested that this is probably unachievable since there is only one supplier in Victoria of FSC and this has only happened recently (10).*

GBCA Response: Whilst it is acknowledged that the compliance criteria make certain credits easier to achieve than others, the primary consideration for Green Star is environmental benefit, rather than ease of attainment.

**Mat-8 'Design for Disassembly'**

No feedback received.

**Mat-9 'Dematerialisation'**

No feedback received. – This credit has been introduced to the Green Star – Education v1 rating tool, it was not included in the Green Star – Education PILOT rating tool.

**Mat-12 'Flooring'**

No feedback received.

**Mat-13 'Joinery'**

*It was suggested that the credit criteria should be revised to award durability, since modular joinery is not preferred by schools. In the majority of cases joinery in primary and secondary schools are built to last the life of the building (9, 10).*

GBCA Response: The GBCA acknowledges the importance of durable joinery; however our investigations show that it is standard practice for industry to offer durable joinery, and that the actual life of a joinery item usually far exceeds its warranty period. Joinery items in education facilities are often disposed of for reasons other than a lack of durability. Modular joinery is environmentally beneficial in education facilities, as partial replacements are better accommodated by these types of items.

A joinery calculator as per the Green Star – Office Interiors v1.1 rating tool has been included in the Green Star – Education v1 rating tool to assist the calculation procedure for the projects.

**Mat-12 'Loose Furniture'**

No feedback received.

## Land Use & Ecology

### Eco – 'Conditional Requirement'

No feedback received.

### Eco-1 'Topsoil'

No feedback received.

### Eco-2 'Re-use of Land'

*It was suggested that it was difficult to achieve this credit for redevelopment on an existing school site (10).*

GBCA Response: A building on an existing site will achieve the credit, the current credit criteria is:

One point is awarded as follows:

If the project is a refurbishment;

OR

A building extension, where the extension boundaries are within a site that has been previously built on;

OR

If at the time of the site purchase, 75% of the site has been previously built on.

### Eco-3 'Reclaimed Contaminated Land'

No feedback received.

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

No feedback received.

## Emissions

### Emi-1 'Refrigerant ODP'

No feedback received.

### Emi-2 'Refrigerant GWP'

*It was suggested that a 'Not Applicable' clause should be introduced for small amounts of refrigerants on a project (9).*

GBCA Response: The credit is awarded based on environmental benefit, not ease of attainment.

### Emi-3 'Refrigerant Leaks'

*It was suggested that this credit is impossible to achieve with small split or packaged units (9).*

GBCA Response: Agreed, it has been clarified that this credit does not address small packaged units.

### Emi-4 'Watercourse Pollution'

No feedback received.

### Emi-5 'Discharge to Sewer'

*It was suggested that this credit should be 'Not Applicable' to primary and secondary schools (10).*

GBCA Response: This credit is applicable to all projects. No details were given in the feedback as to why this credit should be considered 'Not Applicable' to schools.

### Emi-6 'Light Pollution'

No feedback received.

### Emi-7 'Legionella'

No feedback received.

## Innovation

No feedback received.

28<sup>th</sup> August 2008

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