



**green star**  
environmental rating system for buildings

Green Star – Office Design v2  
Green Star – Office As Built v2  
Green Star – Office Interiors v1

**Stakeholder Submission Feedback**  
**January 2006**

This document details the Green Building Council of Australia's response to submissions received during the annual feedback period from 1 December 2004 to 30 November 2005. This is a public document.

## Foreword

The Green Building Council of Australia (GBCA) is a not-for-profit organisation. The GBCA's mission is to accelerate the transition of the property industry towards sustainability. This is achieved by leveraging broad sector support, implementing market-based tools and encouraging the adoption of sustainability measures within legislative and planning frameworks.

The development of a comprehensive, national, voluntary environmental rating system, which evaluates the environmental design and performance of buildings, has been the GBCA's priority from its inception. The GBCA's objectives for developing the framework for a national voluntary rating scheme are based on international experience, scientific reporting of the impact of buildings on the environment and local industry expertise.

The GBCA's Green Star environmental rating system for buildings was launched in June 2003. Green Star provides a suite of rating tools that encourage and recognise initiatives and actions that reduce the environmental impact of buildings. Green Star supports and advances the GBCA's mission and is consistent with its governing principles, goals and objectives.

Within the next two years, Green Star will provide rating tools for all phases of the building life-cycle (e.g. design, post-construction and operation) for different building classes in addition to office buildings (e.g. retail, education, health, residential etc).

Within Green Star – Office site of rating tools there are four tools:

**Green Star – Office Design**, which was launched in 2003, was created to ensure that environmental impacts were considered at the design stage of an office building's development.

**Green Star – Office As Built** assesses the same design initiatives as Office Design, but the validation documentation differs in that it is retrospective and therefore assesses those things that are relevant to the construction of the building and are the responsibility of the contractor.

**Green Star – Office Interiors** assesses the environmental impact of a tenant's office interior fitout.

**Green Star – Office Existing Building** rates the environmental attributes of existing office buildings, independent of their tenants' operations or behaviour.

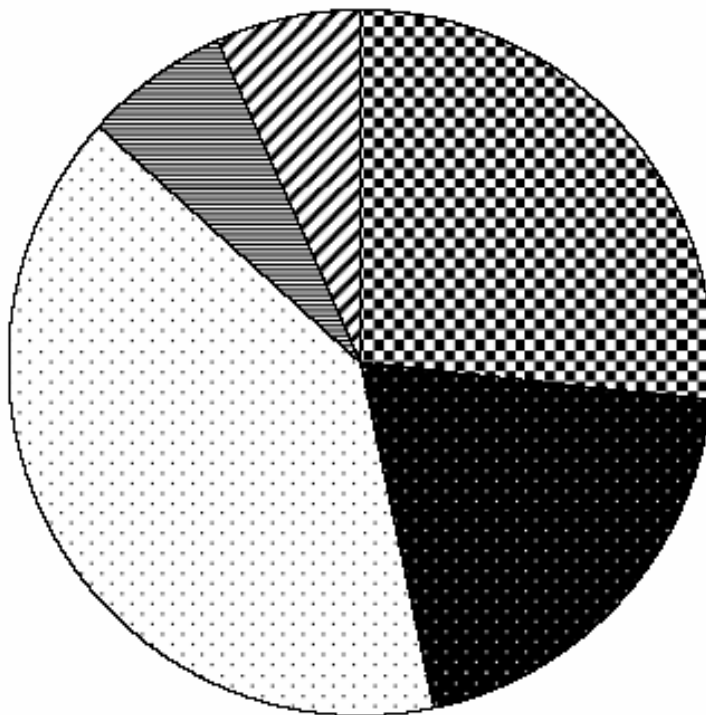
This document is the Green Building Council of Australia's feedback to stakeholder submissions.

Green Building Council stakeholder feedback responses either detail corrective action or provide a clarification of the Council's justification in keeping the credit criteria unchanged.

This is a public document and has been promoted through the Council's website and network database.

In total 15 submissions were received from 1 December 2004 to 30 November 2005.

The following graph identifies the sectors that made submissions:



▣ Industry Association

■ Government

▣ Professional Services

▣ Product Supplier

▣ Owner/Developer

## Background

The GBCA has strong cross-sectoral corporate and government support. It maintains a strong non-profit constitution that ensures that no single industry group can form a majority on its Board of Directors. An important initiative in keeping the GBCA unencumbered by lobbying or self-interest is the exclusion of industry and trade associations from membership. This membership strategy avoids internal lobbying to protect particular product or industry sectors.

The GBCA's Board is comprised of respected property industry leaders, senior government representatives and other professionals who have been widely recognised for their individual contributions towards furthering sustainability within Australia.

The establishment of Green Star is a fundamental requirement to accelerate the transition of the Australian property industry towards sustainability. While credible tools for evaluating energy efficiency or greenhouse gas emissions are well established, Green Star goes further by addressing all key environmental impacts.

Green Star rating tools have been tailored to ensure that they fit neatly within established planning/approval processes across Australia.

The overseas experience has demonstrated that success in greening the property industry has only come where there is clarity about rating tools.

The most successful and effective environmental rating tools are those which are comprehensive in scope and technically robust, yet also simple to apply.

Given that the transition to green buildings is a global phenomenon, it is also vital that rating tools should allow international comparison.

In order to ensure the Australian property industry keeps pace with international developments, and can be measured against them, there needs to be agreement about a single national environmental rating system for buildings that has international recognition.

As the only national comprehensive environmental rating system which is internationally recognised, Green Star should be endorsed as the national voluntary environmental rating system for Australian buildings.

The GBCA is not a regulatory authority and the use of its Green Star rating system is voluntary. This has two impacts, as follows:

The GBCA is not an appropriate body to set minimum standards; this is the role of the Australian Building Codes Board and other legislators. The GBCA does not police the adoption and/or undertaking of green building initiatives beyond third party certification of Green Star ratings.

The view of the Building Codes Board is that sustainability should be a goal of the Building Code of Australia alongside existing goals of health, safety and amenity. The Board has identified energy, water, materials and indoor environmental quality as issues to be considered and work to prioritise specific sustainability issues

against their significance and impact, including assessments about community expectations is scheduled to start in 2005.

The Board has noted that if elements of sustainability are to be addressed for regulatory action, they would need to be subject to the Council of Australian Governments (COAG) regulatory review process.

The Building Code of Australia could be expanded to set minimum environmental standards that are directly related to the best practice metrics within the national voluntary tool.

In the event that planning schemes adopt Green Star metrics for development consent and approval, all the policing necessary to ensure the committed Green Star rating is actually constructed can be provided through the normal construction and occupancy certificate requirements that control all other development consent compliance. This deferral of policing to the planning authorities or the private certification system scheme is seen as a strength of the Green Star rating system.

The implementation framework of the Green Star rating system has been very carefully considered to ensure its value and relevance as an agent of market transformation. The framework adopted by the GBCA in developing Green Star is an enhancement to that produced by the British Building Research Establishment (BRE) for its environmental rating tool, Building Research Establishment Environmental Assessment Methodology (BREEAM). BREEAM was the first voluntary rating tool to measure the environmental impact of buildings in the world and it has been refined continuously for some ten years. BREEAM has informed many subsequent tools, such as the US Green Building Council's Leadership in Energy & Environmental Design (LEED), which is widely used in the USA.

BREEAM measures building designs and existing buildings as two separate assessments and the GBCA's Green Star rating system follows this approach. However, the GBCA has made a significant enhancement to this method via the application of weightings between environmental impact credit categories such as Energy and Water, to match the recognised environmental imperatives in the various Australian states and jurisdictions.

This approach is a world-first for an environmental rating system for buildings and the GBCA is confident that Green Star provides a framework capable of providing a single credible measure of 'green buildings' for all geographical locations within Australia. The GBCA remains committed to a single measure of green for certification and this provides the maximum opportunity to communicate green achievement and compare buildings without having to align a complex matrix of component scores.

The GBCA is also committed to the value of disclosure. While a Green Star rating is given as a single score out of a maximum of six stars, Green Star rating tools also separately measure the results in each of its environmental impact categories, namely:

- Management;
- Indoor Environment Quality;
- Energy;
- Transport;
- Water;
- Materials;
- Land Use and Ecology; and

- Emissions.

The GBCA does not endorse the predicted Green Star rating achieved by the use of any Green Star rating tool. The GBCA offers a formal certification process for ratings of Four Stars and above for Green Star – Office Design, Green Star – As-Built and Green Star – Office Interiors and formal certification of One Stars and above for Green Star – Office Existing Building; this service provides for independent third party review of points claimed to ensure all points can be demonstrated to be achieved by the provision of the necessary documentary evidence. The use of any Green Star rating tool without formal certification by the GBCA does not entitle the user or any other party to promote a Green Star rating publicly. A formal certification process is also provided by GBCA for the Management Efficiency supplement provided within Green Star – Office Existing Building. This service is available yearly and is only applicable to buildings that have a Green Star – Office Existing Building Certified Rating.

In summary, Green Star is an environmental rating system for buildings that:

- is suited to the Australian climatic, ecological, regulatory and commercial environments;
- is informed by the success (or failure) of similar international rating schemes;
- provides weighting between diverse environmental concerns to ensure a clearly communicable single measure of green building;
- rewards best practice and therefore complements the activities of others in legislating minimum environmental performance standards in planning schemes and the building code;
- provides maximum opportunity for widespread adoption through clearly stated credit criteria and low cost of implementation;
- is supported by a non-commercial professional training and accreditation process;
- is freely available and also provides for independent third party accredited assessment through the GBCA;
- will be continually refined and enhanced to reflect a market in transition and emerging environmental impact information; and
- will include and address different building types and the distinct stages of a building's life-cycle.

The GBCA is committed to providing world class rating tools to assist the transition of the Australian property industry towards sustainability. The annual stakeholder feedback is essential to the continual improvement of Green Star.

Stakeholder feedback is not only welcome but actively encouraged.

# Green Star – Office Design v2 and Green Star – Office As Built v2

## General

### **Comment 1 – Professional Services – Consultant A**

*“Overall we are very supportive of Green Star and the GBCA. We applaud the efforts to date and want to assist in streamlining the Green Star process to make it accessible to as wide a range of projects as possible.”*

The GBCA appreciates your support and fully agrees that the Green Star assessment process can and needs to be streamlined. The Feedback process is a part of the larger GBCA effort to accomplish this. The GBCA will have Green Star rating tools for all major building types by 2007 and continually enhance the tools and improve its certification process and educational offerings.

### **Comment 2 – Professional Services – Consultant E**

*“How do you define the project contract value?.. Concrete is to represent 1% of the project contract value to be considered for a point. Does this mean supplied and installed including materials and labour costs and any other costs that may be incorporated with pouring concrete such as formwork?”*

Labour and ancillary costs are not addressed in Green Star calculations, only the cost of product as supplied to site.

## IEQ-5 ‘Office Lighting Power Density’

### **Suggestion 1 – Professional Services – Consultant A**

*“We believe that the requirement for calculations showing lighting levels becomes redundant if the specification states that all lighting will be dimmed and set to a maximum lux level during the commissioning process... In effect these calculations would show only the maximum possible lighting levels in an undimmed state and so does not take into the [account the] commissioning that ensures that all lighting is below the 400 Lux level.”*

Green Star assesses the capacity of building’s attributes to reduce its environmental impact. Any project that allows for greater luminance levels does not meet the aim of this credit because tenant operations and/or behaviour can reverse the effort of the commissioning and utilise the full capacity of the design.

## IEQ-7 ‘Electric Light Levels’

### **Suggestion 1 – Professional Services – Consultant C**

*“Copy approach from Interiors Tool, i.e. 2 points for 220 Wa background with a requirement for tenant to install task lighting.”*

Your suggestion is valid and appreciated. This will be reviewed in 2007, when new versions of current Green Star tools will be released to reflect Green Star’s transition into non-office building types.

## Ene-1 'Energy'

All feedback related to Ene-1 and the Australian Building Greenhouse Rating (ABGR) scheme is addressed in the GBCA position paper [Energy Benchmarking Within Green Star Rating Tools](#). This document can be found under Position Papers in the Advocacy section of the GBCA website.

## Ene-6 'Office Lighting Zoning'

### **Suggestion 1 – Professional Services – Consultant C**

*“Copy approach from Interiors Tool, i.e. 2 points for an addressable control system; a bonus point for auto-dimming perimeter lights; and a bonus point for motion detection to control lighting.”*

Your suggestion is valid and appreciated. This will be reviewed in 2007, when new versions of current Green Star tools will be released to reflect Green Star's transition into non-office building types.

## Tra-3 'Cyclist Facilities'

### **Question/Suggestion 1 – State Government B**

*“Under the Tra-3 Cyclist Facilities an additional point is awarded for visitor bicycle parking provided within the project that meets the criteria of one space per 7,500m<sup>2</sup> NLA. The Austroads standard specifies one visitor bicycle space per 750m<sup>2</sup> GFA. Why does Green Star have such a widely different figure?”*

The discrepancy appears to be a typo that resulted in an extra zero. The Technical Manual has been updated and projects advised of the change via the website.

## Wat-1 'Potable Water Efficiency'

### **Suggestion 1 – Professional Services – Consultant A**

*“With the introduction of the new WELS scheme in Victoria – all tap ware have to use flow restrictors which limit the flow to between 7.5-9 l/min. it is therefore very difficult to find manufacturers' data containing specific flow rates. Further guidance is required on how to incorporate these ranges into the Water Calculator – and what sort of evidence needs to be provided – given that all manufactures will be working within the same range.”*

The GBCA is aware that the ease of collecting documentation from manufacturers is dependent on their familiarity with Green Star and on their understanding of their roles in the Green Star process. The GBCA is implementing a number of initiatives to expedite an increase of such understanding. In 2006, GBCA is also increasing the number of member and stakeholder forums it will offer across the country and has updated its website to provide additional information and guidance.

It is unclear to the GBCA why tapware manufacturers would no longer indicate the predicted flow rates for their fixtures, especially since Victoria manufacturers would still trade across the country. No change to the Water Calculator is necessary at this time.

## Wat-3 'Landscape Irrigation Water Efficiency'

### **Suggestion 1 – Professional Services – Consultant A**

*“Our recent experience on ‘Project X’ has revealed the short comings in the GBCA’s current requirements for rainwater systems in Victoria. The credit wording requires sign-off from the EPA that the water storage design is appropriate.”*

It is important to not that Green Star does not stipulate EPA approval but rather that of a ‘relevant authority’ in the state or territory. This requirement is stipulated under Water credit Wat-1 ‘Occupant Amenity Potable Water Efficiency’ (not under Wat-3).

#### **Suggestion 2 – Professional Services – Consultant A**

*“In Victoria, until there is a stronger regulation or legislation, we believe that the requirement for approval from a relevant authority should be removed as there is no singly authority able to or willing to provide approval for the whole system.”*

Green Star Credit Criteria are established on the basis of environmental impact, not ease or cost of attainment. Removing Green Star criteria for the reasons outlined above would not advance positive regulatory and market change Green Star is intended to facilitate. The GBCA has been made aware that there is no relevant authority in place in Victoria, and a clarification is now available on the website. It stipulates that a short report from a qualified hydraulics engineer will be ‘deemed to comply’ in place of an approval from the relevant authority, if the short report states that the water collection and re-use systems comply with the relevant NSW standards.

#### **Mat-5 ‘Recycled Content of Concrete’**

##### **Question/Suggestion 1 – Professional Services – Consultant E**

*“Why are cement replacement percentages for precast concrete less than cast in situ concrete?”*

Precast concrete must achieve high early strength to allow for the next day stripping. Early strength is determined solely by the quantity of cement. Fly ash and other supplementary cementitious materials (SCMs) begin to contribute to the concrete strength after 24 hours, so in mainstream practice, precast concrete mixes typically have no cement replacement. This is less of an issue with in-situ concrete, as there is more time to achieve the concrete strength. Green Star aims to create incentives for more sustainable production in both cases.

##### **Question/Suggestion 2 – Professional Services – Consultant E**

*“The summary of changes, released prior to the manual, stated that recycled was to incorporate ‘post industrial’ as well as ‘post consumer’ products. However, the compliance requirements for recycled aggregate to class 1 RCA and Therefore restrict the credit to ‘post consumer’ products for all practical purposes... As one of the aims is to reduce resource depletion we should be promoting the use of other recycled materials and therefore recommend the compliance requirements be expanded to include post industrial products.”*

The GBCA has engaged NSW branch of the Concrete Institute of Australia to address this question. Response to this feedback will be made publicly available on the website in February 2006.

##### **Question/Suggestion 3 – Professional Services – Consultant E**

*“The credit should take into account the difficulty in achieving higher quantities of cement replacement in post tensioned concrete and it should be acknowledged that inherently a post tensioned floor system is more sustainable through its reductions in concrete consumption compared to normally reinforced concrete. For cast in situ reinforced concrete elements increase the percentage of cement replacement to 40% and 60% for 1 point and 2 points respectively. For cast in situ post tensioned elements, point allocation to reduce to 15% and 30%.”*

The GBCA has confirmed that post-tensioned floors are typically 10 to 40% thinner than precast or cast in-situ floors. Post-tensioned floors also contain about 50% less steel than reinforced floors, making them superior to reinforced concrete floors from the standpoint of resource consumption.

Projects with a substantial component of post-tensioned concrete can claim fulfilment of the intent of this credit if they demonstrate overall reduction in the amount of aggregate and/or cement used in accordance with the Credit Criteria (e.g., 20% less aggregate and/or cement used via decreased demand for these substances in post-tensioned concrete).

**Question/Suggestion 4 – Professional Services – Consultant E**

*“Points are awarded on the basis of reduction of OPC. Does this reduction have to be pro rata with the increase in cement replacement? Or, can one still gain the points by, say, reducing the amount of OPC in a mix by 30kg/m<sup>2</sup> and introducing 50kg/m<sup>3</sup> of cement replacement?”*

As per the Green Star - Office Design v2 Technical Manual, “Points are awarded on the basis of reductions in Portland Cement use, rather than the quantity of industrial waste product used and evidence is to show a replacement schedule and not simply compare the proportion of industrial waste product to cement.”

**Mat-6 ‘Recycled Content of Steel’**

**Question/Suggestion 1 – Professional Services – Consultant E**

*“Post tensioned concrete floors generally use significantly less steel compared to normally reinforced concrete. It is also much more difficult to source post tensioning strand with a recycled content than for normal reinforcement. We suggest that when considering steel in concrete that post tensioning strand not be considered in the recycled content calculation as inherently embodied energy and resource use is significantly less than normal reinforcement.”*

Green Star credits are based on environmental impact, not on ease or cost of attainment. International experience vividly demonstrates that sourcing sustainable alternatives will become easier as the building industry becomes more familiar with Green Star.

**Mat-7 ‘PVC Minimisation’**

**Question/Suggestion 1 – Industry Association A**

*“These credits should be removed. There is no scientific basis for encouraging the elimination of PVC building products...No adequate explanation is given as to why such a position on a commonly used and respected is being taken...Where is the Green Building Council’s evidence that it causes more harm?”*

Vinyl chloride is classified as a human carcinogen by Australia’s National Occupational Health & Safety Commission, the United States Environmental Protection Agency, and the International Agency for Research on Cancer, among other research and regulatory organisations.

The GBCA’s approach to the environmental and human health impact of vinyl chloride is in the same precautionary way as climate change which also continues to have conflicting scientific opinion.

**Question/Comment 2 – Industry Association A**

*“To date, there is no evidence that the Green Building Council – or the advisers it relies on – has performed an open, rigorous review of PVC or any other material.”*

The GBCA does not test or certify products or materials, but rather relies on third parties to assess and certify products and materials. The GBCA notes that vinyl chloride is classified as a human carcinogen by Australia's National Occupational Health & Safety Commission, the United States Environmental Protection Agency, and the International Agency for Research on Cancer, among other research and regulatory organisations.

**Question/Comment 3 – Industry Association A**

*"The CSIRO, in its 1996 report..."*

*"A report prepared for the European Commission in 2004..."*

*"In 2004, the Australian Department of Environment and Heritage published a report..."*

The positions both for and against the manufacture and use of PVC can cite various studies to justify and defend their respective positions. The GBCA advises that if citing a study to read it thoroughly and to understand its context. For example, the report cited as commissioned by the European Commission has the following disclaimer: "should not necessarily be regarded as stating an official position of the European Commission." Moreover, the 2004 Australian Department of Environment and Heritage (DEH) cited is full of information substantiating the problems associated with the end-of-life of PVC products.

The GBCA notes that the specific quote used from the 2004 DEH report and cited in the feedback from XXX as the words of the author – "The overall conclusion of the most recent studies is that PVC products do not constitute a substantial impact on toxicity of landfill leachate and gas" – is in fact a quote from another study used by the author in a discussion of other research and not the conclusions of the author of the DEH study. The GBCA assumes this is a mistake by XXX and was not intended to mislead the reader into false assumptions about the report's conclusions.

The GBCA and Australia need to approach this in the same precautionary way as climate change as conflicting scientific opinion is inevitable.

**Question/Comment 4 – Industry Association A**

*"Currently, no other Green Building Council in the world has a credit – or a policy – specifically designed to restrict the use of PVC."*

**Question/ Comment 1 – Professional Services – Consultant B**

*Currently LEED and BREEAM do not award credits for minimising PVC.*

Green Star is the environmental rating system for Australia although based on international rating tools it is independent of these.

The US Green Building Council (USGBC) is not an affiliate of GBCA.

The USGBC and GBCA are both affiliates of the World Green Building Council (WorldGBC). The WorldGBC has an agreed position that respects each member country's ability to produce a rating tool product that meets local market needs and is benchmarked against local market practices and legislative precedents.

**Question/Comment 5 - Industry Association A**

*"The US Green Building Council...openly conducted a review of PVC's life cycle in its major applications. The draft report published in late 2004 found no justification for a credit for PVC minimisation."*

**Question/Comment 2 – Professional Services – Consultant B**

*"The LEED position on PVC is under review and the draft report and representations made to the LEED PVC Task Group have been summarised in a Memorandum to "PVC Issue Stakeholders" dated 25 August 2005. The Task group notes "that if PVC is not consistently the worst option for its common applications, such a credit could readily become an incentive to use something worse, which would not represent positive market transformation"."*

As noted in GBCA's previous correspondence and on the GBCA and the USGBC websites; the US Green Building Council's DRAFT report is explicitly marked, "Not For Citation" and therefore not credible for referencing. Indeed, in this case the GBCA's position stands as the precedent.

**Question/Comment 5 – Industry Association A**

*"Building designers and specifiers should be free to choose all products based on their merits in terms of fitness for purpose, life cycle cost and environmental impacts and reputable science should be relied up to assess environmental impact."*

Green Star tools do not prescribe design techniques or strategies. Decisions regarding project design and about which Green Star credits a project would like to achieve are at the sole discretion of the project team.

**Question/Comment 6 – Industry Association A**

*"Alternatives being recommended by Green Star cause great concern. There is no life cycle evidence cited that these alternatives perform better in terms of environmental aspects over their life cycles. Some of the alternatives proposed suggest poor understanding of fitness for purpose, life cycle cost and environmental attributes."*

**Question/Comment 7 – Industry Association A**

*"There are many manufacturing processes in which hazardous substances are involved; there is no justification for singling out PVC manufacturing for discrimination."*

**Question/Comment 8 – Industry Association A**

*"Many other building material manufacturing processes are larger sources of dioxins than the life cycle of PVC. Thus, eliminating PVC as a building material will not reduce dioxin emissions. If it is an intention of Green Star to promote reductions in dioxins, then why not target the major emitters, rather than PVC?"*

Per Australia's 2005 National Pollutant Inventory (NPI), the emissions for Australian Vinyls Corp Ltd, producer of nearly all of Australia's PVC resin, was 2,600 kg of Vinyl Chloride Monomer, making it the largest single point-source emitter of Vinyl Chloride Monomer in the country.

To put Vinyl Chloride Monomer in context, the NPI website notes: "On a health hazard spectrum of 0 - 3 Vinyl Chloride Monomer registers 2.2. A score of 3 represents a very high hazard to health, 2 represents a medium hazard and 1 is harmful to health. Factors that are taken into account to obtain this ranking include the extent of the material's toxic or poisonous nature and/or its lack of toxicity, and the evaluation of its tendency to cause, or not cause cancer and/or birth defects...A substance that scores highly as a health hazard is arsenic at 2.3 and one of the lowest scores is ammonia at 1.0"

At this point it is impossible for Green Star to address every building product that is toxic in its manufacture or use. Green Star addresses those areas where the property industry can have the biggest impact on reducing the environmental or human health impact. As the production of PVC resin is the top emitter of a hazardous pollutant, the GBCA feels it is justified in addressing PVC in its Green Star tools.

**Question/Comment 9 – Industry Association A**

*"Australia has been recycling PVC safely for many years...The amount of PVC construction waste generated is small."*

**Question/Comment 4 Professional Services – Consultant B**

*"The recyclability of PVC is becoming increasingly significant and should be a factor to consider the life cycle of the product."*

Per the 2004 Dept. of Environment and Heritage Report, "End of Life Environmental Issues with PVC in Australia" cited in this feedback by XXX: in the year 2000, 225,000 tons of PVC were used in Australia (p.11), and by 2002, only 9,000 – 9,500 tons of PVC were being

recycled in Australia (p.35). The construction and demolition industry accounts for approximately 80% of the PVC consumed in Australia and the Recommendations by Market Sector section of this study notes that, “Most waste PVC in this industry is either left in situ, buried on site or sent to landfill with other building and demolition waste.” (p.58)

The 2004 DEH report section 6.3.1 Impediments to PVC Recovery and Recycling in Australia also provides a substantial list of reasons why the GBCA is justified in its assertion that **Australia has limited provision for safe recycling of PVC**. The items on the list that pertain to PVC uses in building construction and demolition are quoted here:

- The low volumes of end-of-life PVC that are currently available for recycling in Australia (related to factors such as population densities, collection economics and PVC waste export market).
- The lack of available infrastructure for recovery and recycling of durable PVC products (which compromise some 80% of PVC applications)
- The diverse and multicomponent nature of many PVC formulations (e.g. Various stabilization systems, plasticizers, fillers and other additives).
- The presence of diverse sources of contamination (e.g. copper, fibre-reinforcement, foam backing).
- Cross contamination issues due to the presence of commingled resins (e.g. PET, HDPE) mixed with the PVC stream.
- The relative thermal instability of PVC (exacerbated by the consumption of the heat stabiliser during processing and its life cycle) compared to other commodity polymers. In addition potential reprocessors are concerned about machinery corrosion due to *hydrochloric acid attack* (GBCA italics).
- The past and present low cost of landfilling in Australia. This makes this mode of disposal for industrial PVC waste (cut-offs, trimmings) an economically attractive option.
- The lack of well-administered voluntary and non-voluntary schemes/initiatives aimed at encouraging higher recovery and recycling rates for specific PVC product types (for example flooring, pipes/conduit, containers) *notwithstanding the limited programs by the Vinyl Council* (GBCA italics).
- Poor continuity of supply in closed-loop recycling of PVC products is a major impediment.
- Positioning of PVC at the very bottom of the cost *versus* retained performance value matrix for common materials (Scheirs, 1998). The margins between the cost of the recovery/recycling compared to the commercial value of the recyclate are very low.

Factors such as the presence of sustainable end markets for PVC recyclate, the existence of sorting processes and availability of recycling technologies for PVC waste streams are not considered significant barriers that limit its greater recycling. (p.30-31).

#### **Question/Comment 10 – Industry Association A**

*“According to a report from BIC Shrapnel (2000), the avoidance of PVC at Homebush cost NSW an additional \$16.7 million, for no net environmental gain. This represented a 39% increase over the costs which would have occurred had there been no PVC minimisation clause.”*

#### **Question/Comment 5 – Professional Services – Consultant B**

*“We have found in the application of the Office design tool that the points awarded for PVC minimisation are not worth the cost of pursuing. Alternative materials are significantly more expensive. The cost premium is hence regarded as being better spent elsewhere, on other sustainability initiatives.”*

The purpose of Green Star is to address environmental impacts and recognise and reward initiatives that avoid or reduce the environmental impact of the built environment. Green Star does not address current cost issues in the marketplace.

The GBCA believe the 2 points out of 20 for Green Star – Office Design with an environmental weighting of 10% and 2 out of 30 points for the Green Star – Office Interiors with environmental weighting of 21% is adequate for the environmental benefit. The GBCA will review the number of points for the Material Credit ‘PVC Minimisation’ in its 2007 review.

**Question/Comment 11 – Industry Association A**

*“In view of the NSW Procurement Policy, released subsequently to the Olympic ‘Green Guidelines’, and its commitment to the principle of fair selection on merit for all materials, reassess the use of the Olympic Park ‘Green Guidelines’ as an appropriate precedent for Green Star, particularly in the case of PVC use.”*

The GBCA will continue to uphold the precedent set by the Sydney Olympic Park Act (SOPA) and VicUrban’s Environmentally Sustainable Development Guide, which both uphold the principle of PVC minimisation. The PVC minimisation credit within Green Star rating tools is based on the precautionary principle and the referenced environmental and human health impacts of vinyl chloride.

PVC production and use is known as a significant contributor to dioxin in the environment. The GBCA welcomes parties with an interest in reducing dioxins (or any of the other “Dirty Dozen” from the Stockholm Convention”) in the environment to present information on additional building materials with strong associations to dioxin emissions for consideration as a potential Green Star credit for use minimisation.

**Question/Comment 12 – Industry Association A**

*“The reference to the National Occupational Health & Safety Commission Hazardous Substances and Dangerous Goods website is not particularly useful to Green Star users, without an indication of what site content is being referenced.”*

All credits in the Green Star Technical Manuals have the same format under the References and Further Information sections: a link to main page of the organisation referenced.

The NOHSC document describing the hazards of Vinyl Chloride can be found here: [http://www.nohsc.gov.au/index\\_search/default.asp?qu=vinyl+chloride](http://www.nohsc.gov.au/index_search/default.asp?qu=vinyl+chloride)

**Question/Comment 13 – Industry Association A**

*“PVC is not a hazardous substance nor a dangerous good under the NOHSC regulation.”*

The National Occupational Health & Safety Commission (NOHSC) lists Vinyl Chloride as a known carcinogen. Per the NOHSC National Code of Practice for the Safe Use of Vinyl Chloride, section 6. Health Hazards, item 6.5:

*“Vinyl Chloride has been given a Category 1 classification (Established Human Carcinogen). Established Human Carcinogens are substance for which there is sufficient evidence to indicate the existence of casual association with occupational cancer in humans 1.”*

**Question/Comment 14 – Industry Association A**

*“Given the wealth of information available, the reference list provided by Green Star is highly selective. Three of the five references are for environmental activist groups. This reference list does not demonstrate a balanced and scientific approach to assessment.”*

**Question/Comment 6 – Professional Services – Consultant B**

*“The health community at large do not agree with the PVC minimisation policy adopted by the GBCA to date, and we request clarity on the scientific grounds for continuing with this policy.”*

There are countless reports, articles, studies, and organisations that can be cited by any side of an argument. However, the GBCA adds the following list of noteworthy references:

1. An affidavit by Dr. Judith Schrieber, Senior Public Health Scientist with the New York State Department of Law, New York State Office of the Attorney General. This affidavit was sworn as a result of the lawsuit filed by a vinyl flooring association

against New York State's for its refusal to give a tax credit under its Green Building Tax Credit program for the use of vinyl flooring.  
[http://www.healthybuilding.net/pvc/NYS\\_vinyl\\_affidavit\\_js.pdf](http://www.healthybuilding.net/pvc/NYS_vinyl_affidavit_js.pdf)

2. The website of the United Nations Industrial Development Organization has substantial information on the hazards of Persistent Organic Pollutants (POPs) <http://www.unido.org/doc/46478>, including the Stockholm Convention's "Dirty Dozen" list (<http://www.unido.org/doc/29428>) – Dioxins are listed as #2.
3. Green Guidelines for Health Care ([www.gghc.org](http://www.gghc.org)) is the premier environmental rating systems for health facilities in the US. It includes a credit for PBT Elimination – Dioxins. PBTs are Persistent Bioaccumulative Toxins. Credit criteria specifically cite the minimisation of the use of PVC in building materials.
4. Australia's National Pollutant Inventory (<http://www.npi.gov.au>) gives detailed information on the emissions of key pollutants around the country. As the source of nearly all of Australia's PVC resin, Australian Vinyls Corp. is the largest point-source emitter of toxic Vinyl Chloride Monomer in the country, and is only superseded by landfills and domestic burning in total emissions of Vinyl Chloride Monomer.

Green Star addresses those areas where the property industry can have the biggest impact on reducing the environmental or human health impact. As the product of PVC resin is one of the top emitters of toxic pollutants, per the National Pollutant Inventory, the GBCA feels it is justified in addressing PVC in its Green Star tools.

#### **Question/Comment 15 – Industry Association A**

*"PVC products are not considered toxic for landfill disposal."*

Again, the GBCA notes that studies can be cited to support any argument, whether on PVC, global warming, or any other topic where parties have a vested interest in the results.

According to testimony by the New York State Attorney Office, which also cites a 1997 report by the US Department of Health and Human Services, "Vinyl chloride leaches into groundwater from spills, landfills, and industrial sources (e.g., the plastics industry). According to data collected from the analysis of leachates and monitoring wells at sites where groundwater was contaminated by municipal solid waste landfill leachate, vinyl chloride was present in both the leachates and the groundwater samples."

Furthermore, Australia's National Pollutant Inventory for 2005 indicates while the largest single point-source of Vinyl Chloride Monomer emissions is the Australian Vinyls Corp., the largest non-point-source (diffuse) emitter of Vinyl Chloride Monomer in Australia is landfills.

#### **Question/Comment 16 - Industry Association A**

*"The Australian Green Building Council has been quoted in the media as stating its negative position on PVC is based, in part, on the Stockholm Convention. Such comment mischaracterises the intent of the Convention which does not list, nor directly address, PVC. The Stockholm Convention relates to the release of Persistent Organic Pollutants (POPs), including dioxins, which have been associated with the life cycles of various building products – including PVC."*

Appendix 1, Section II, of the Stockholm Convention calls on governments and regional economic integration organizations "to reduce, with the aim of eliminating, where feasible, the uses and releases of persistent bioaccumulative pollutants, as specified in the Convention, throughout their lifecycle..."

Article 5c calls for the use of alternative materials to those that are known to contribute to POPs in the environment.

PVC production and use is known as a significant contributor to dioxin in the environment. The GBCA welcomes parties with an interest in reducing dioxins (or any of the other "Dirty Dozen" from the Stockholm Convention") in the environment to present information on additional building materials with strong associations to dioxin emissions for consideration as a potential Green Star credit for use minimisation.

## Mat- 8 'Sustainable Timber'

### **Question/Suggestion 1 – State Government A**

*"Can you please advise you reasons and views for not listing AFS certified forests and for listing FSC only."*

The GBCA recognises there are numerous forestry certification schemes around the world, all representing various interests and all purporting to be the most effective standard. The Forest Stewardship Council's (FSC) certification standard is unique among all other schemes in terms of consistent, long-standing, and broad support by conservation groups internationally.

At the time of the creation of Green Star, the GBCA looked at several forestry schemes for incorporation into the tools, including FSC and the Australian Forestry Standard (AFS). FSC is a performance-based standard and AFS is primarily a management-based standard with a smaller number performance initiatives. Performance-based initiatives are the only way to ensure more environmentally sustainable outcomes and as such, FSC was adopted for reference by Green Star.

Currently, a joint effort by the World Bank and the World Wildlife Fund to assess global certification schemes is being completed. It is anticipated that as assessment of certification schemes available in Australia will be completed in early 2006. The GBCA will review this assessment and if the AFS and FSC schemes are deemed comparable. The GBCA will consider revising the Mat-8 credit at that time.

### **Question/Suggestion 2 – Industry Association B**

*"The Timber policy in the tool is unrealistic and detrimental to both the environment and the timber industry."*

The Mat-8 credit requires the use of Forest Stewardship Council's (FSC) standard, which does not allow the use of Genetically Modified Organisms (GMO) or the conversion of native forest to plantation forest. It is not clear to the GBCA how these principles are detrimental to the environment.

### **Question/Suggestion 3 – Industry Association B**

*"To achieve points under the criteria is impossible."  
"This policy selects against timber and there needs to be an achievable criterion and more points for achieving it."*

To date, there are seven Green Star certified buildings, five of which have achieved the Mat-8 credit for Sustainable Timber.

### **Question/Suggestion 4 – Industry Association B**

*"Post consumer timber can not be used for all applications, and there is no supply of building grade FSC certified timbers in Australia."*

Hampton and Larsson in Lismore, NSW, is an FSC-certified joinery. One of the goals of Green Star is transformation of the marketplace and the GBCA hopes that as a result of the Mat-8 credit that more FSC timber will be available in Australia.

### **Question/Suggestion 5 – Industry Association B**

*"...there is too much inequity in the FSC certifying system; standards applied overseas are not the same as those implemented over here, and there is a feeling that the FSC is a influenced organisation as it is controlled by the Environmental NGO's. It is therefore not appropriate for a governmental organisation to affiliate with such an organisation."*

FSC endorses national standards in individual countries based on each standard's adhesion to FSC principles. There will inevitably be differences between the standards.

As an environmental NGO, the GBCA is committed to the belief that it is possible to represent the interests of industry and government while creating change in the marketplace and in regulation in order to protect the environment.

**Question/Suggestion 6 – Industry Association B**

*“The solution is not to specify a particular certifying body or bodies, as they will require to be updated [sic] as there are new ones or changed in name, etc. ie., PEFC, FSC, and AFS being the predominant ones in Australia.”*

The GBCA does not rate or evaluate specific products or materials and relies on third-party certification to validate the claims made by manufacturers and material producers. There is no credible way to guarantee the use of sustainable timber without the use of a third party certification scheme hence the reference in Green Star rating tools to FSC.

**Question/Suggestion 7 – Industry Association B**

*“Greenstar is currently wrong, and for it to be considered a genuine tool it must be updated to reflect what is actually happening.”*

The goal of the GBCA and Green Star is to affect change in order to reduce the property industry’s impacts on the environment. Please see our website for a detailed description of the impacts that building construction and demolition have on energy and water use, global warming, resource depletion, and waste generation, among others.

To simply enforce the status quo and “what is actually happening” would be to let these impacts continue to grow at their current untenable rate. The GBCA has been awarded charitable status recognising its mission to define and develop a sustainable property industry in Australia and to drive the adoption of green building practices through market-based solutions.

Central to the work of the GBCA is endorsement of projects that demonstrate best practice and beyond initiatives that reduce the environmental impact of buildings. A Green Star building minimises its environmental impact and is healthy and comfortable.

**Question/Suggestion 8 – Industry Association B**

*“Another issue is Indoor air quality, to specify that you receive points for using “No composite Wood Product” is quite a statement, which I think needs revising. When you compare the alternatives from a life cycle perspective MDF’s and other composite wood products are more environmentally friendly than others. The tool seems to be contradictory to the aims of achieving a more sustainable built environment.”*

The criteria that ‘No composite wood product used’ is but a proxy for signifying that formaldehyde is not an issue in a project. Green Star does not address the actual use of MDF, but merely its formaldehyde content. Green Star does not discriminate against MDF and will reward projects that use low-emission MDF.

**Question/Suggestion 9 – Industry Association B**

*“There are low formaldehyde MDF’s that exceed EN717 - 1, which I presume is the main aim of the credit but the tool does not encourage their use at all.”*

This position is incorrect as Green Star states that ‘One Point is awarded where it is demonstrated that all composite wood product is low emission formaldehyde OR no composite wood product used.’

**Question/Suggestion 10 – Industry Association C**

*“XXX would be keen to be advised of the groups that were approached and the consultation was undertaken as part of the review, as it does not appear that the GBCA formally approached XXX for its views on this issue.”*

A number of environmental organisations, research institutions, and industry experts were consulted in the development of this credit. Neither AFS nor FSC, nor any representatives

from certification schemes, were consulted in the GBCA's evaluation of their standards as it would be impossible for them to provide unbiased information regarding their own initiatives.

**Question/Suggestion 11 – Industry Association C**

*"As you may not be aware, the [Australian Forestry Certification Standard] has an Australian Standard – AS 4707 – published in march 2004 as an Interim AS, as the basis for its chain of custody to be delivered under a product certification program. This AS was developed during 2003/2004 by a multi-stakeholder technical committee of all interests in the supply or value chain from forest managers to retailers...In terms of having an AS recognised by Standards Australia, I cannot see how the views of the GBCA were formulated to indicate that it wasn't '...comprehensive enough...'"*

The GBCA notes that all environmental NGOs originally participating in the creation of the AFS standard dropped out in 2002 due to concerns that their participation had no meaningful impact on the process. Even a rigorous chain-of-custody process is only effective as the standard it is implementing. The GBCA encourages the establishment of a national, internationally recognised and NGO endorsed certification standard. The GBCA will review the joint effort by the World Bank and the World Wildlife Fund to assess global certification schemes. It is anticipated that the assessment of certification schemes available in Australia and if the AFS and FSC schemes are deemed comparable the GBCA will consider an update of its Green Star rating tools timber standard reference.

**Question/Suggestion 12 – Industry Association C**

*"...in the GBCA's June response, it indicates that there are annual reviews of the Green Star Rating Tool and its criteria – can you advise as to when this would be undertaken and by what means can XXX provide a submission to the review process in relation to the information supplied above for the Sustainable Timber (Mat-8) category."*

Every year, the GBCA accepts feedback until November 30 and responds early the following year. This response is a part of this feedback process. In addition, the GBCA presents at least one public forum a month. To date the GBAC has presented at more than 400 forums in 3 years. The GBCA actively encourages stakeholder input, feedback and suggested improvements for its activities and Green Star rating tools.

**Question/Suggestion 12 – Industry Association C**

*"...XXX would be willing to meet with the Executive Director and representatives of the GBCA in Sydney to further illustrate the elements of the AFCS and to assist the GBCA in any review of the AFCS so that it can be considered under the criteria for Sustainable Timber (Mat-8) of the Green Star Rating Tools."*

It is understood that a joint effort by the World Bank and the World Wildlife Fund to assess global certification schemes is being completed early in 2006. It is anticipated that an assessment of certification schemes available in Australia will also be completed. Once this assessment is available, the GBCA will review the findings and if the AFS and FSC schemes are deemed comparable in their performance-based requirements and ability to ensure sustainable outcomes, then the GBCA will consider revising the Mat-8 credit.

## New Credits

**Suggestion 1 – Professional Services – Consultant C**

*"Copy Eco-2 'Building Layout Efficiency' from the Interiors Tool, as this is more of a base building issue."*

The experts involved in the creation of this credit have indicated to the GBCA that tenancies can achieve this credit regardless of the base building conditions. As a result, not to complicate Green Star tools unduly, this initiative is only rewarded in the Tool most applicable to it.

## Rating Mixed-Use Facilities under Green Star

### **Suggestion 1 – Professional Services - Consultant D**

*“I was hoping I could influence the Green Building Council of Australia Technical Steering Committee on the issue of the rating of mixed use buildings that are primarily for office use.”*

The Green Star rating system currently only assesses projects with the Class 5 Commercial Office component of at least 80% of NLA. The GBCA is aware that this may exclude many noteworthy projects from assessment and has intended to develop capacity for assessing mixed-use projects from the inception of Green Star. Effective assessment of mixed-use developments requires an advanced understanding of how different building types impact the environment. Until Green Star tools are developed for each type of facility in a mixed-use development, rating such developments will not be possible. By 2007, Green Star will have addressed a number of different building types and will be able to assess a wide variety of mixed-use projects.

## Green Star – Office Interiors v1

### IEQ-6 ‘Electric Lighting Levels’

#### **Suggestion 1 – Owner/Developer – Owner A**

*“We believe the Office Interiors rating would benefit from having the two component lighting system element withdrawn and the points allocated to Ene-4 [‘Office Lighting Zoning’] to appropriately credit a comprehensive lighting control system.”*

IEQ-6 ‘Electric Lighting Levels’ is intended to assess the visual comfort of the tenants, not the energy intensity of a given system. The energy saving potential of a lighting system is recognised and rewarded by the Energy Category credits regardless of whether the project claims IEQ-6 ‘Electric Lighting Levels’.

The additional credit under IEQ-6 ‘Electric Lighting Levels’ stipulates the inclusion of a ‘Two Component Lighting System’ because research has positioned it to best meet the visual comfort and individual control needs of occupants. If a project demonstrates that a different system meets the intent of the credit, it will be considered under a Credit Interpretation Request and points may be allocated for this initiative. The Green Star website contains information on the Credit Interpretation Request (CIR) process [www.gbcaus.org](http://www.gbcaus.org)

### IEQ-10 ‘Interior Noise Levels’

#### **Suggestion 1 – Industry Association D**

*“IEQ-10 ‘Interior Noise Levels’ could be improved by: rating products for acoustic properties in terms of reverberation and attenuation of noise. [Our organisation] recommends that points be awarded for acoustic performance of floor, ceiling and wall coverings for reverberation and attenuation of noise.”*

It is important to note that neither the GBCA nor Green Star test, review or certify products or materials. Green Star does, however, reward products for their contribution to reducing the environmental impact of buildings.

Acoustic models and calculations would reflect the effect of known finishes. Responsibility for this is not in the realm of the GBCA, but rather in the realm of acoustic consultant expertise. In the specific instance of carpet, this company is encouraged to educate

acoustic consultants that carpet contributes to the reduction of interior noise levels and should be included in noise modelling/estimations.

## IEQ-11 'Volatile Organic Compounds'

### **Suggestion 1 – Industry Association D**

*"IEQ-11 'Volatile Organic Compounds' could be improved by: providing point for products that remove particulates from the breathing zone and absorb VOCs, and by providing advice on the criteria and level of proof required to show low VOCs... We should ask for further points for air purification 1 for particulate removal and 1 for absorbing VOCs."*

### **Question/Suggestion 2 – Professional Services – Consultant A**

*"IEQ-11 'Volatile Organic Compounds', IEQ-12 'Formaldehyde Minimisation' and Mat-11 'Timber' (and possible Mat-10 'PVC Minimisation') should be incorporated across Mat-1 to Mat-8, this encourages people to use complying products (at present, it is unlikely that 100% of all products would achieve the requirements, so even if 80% of products complied, points would not be awarded)."*

Although it presents merit, including additional measures in the calculators would contradict Green Star's strive for simplification.

The GBCA supports research institutions in initiatives that explore the cumulative effects of VOCs in indoor environments. To date, there is much ambiguity in the scientific community's understanding of the way various chemicals interact with each other in indoor environments, yet it is clear that they do, and that such interaction is influenced by the composition of the atmosphere (e.g., UV rays prevalent in Australia enhance malevolent reactions among VOCs).

Until Australian or international research illuminates the cumulative effects of VOCs in indoor environments are better understood and a single measure of VOC content is derived, Green Star must limit its influence to individual products' and finishes' VOC emissions. A single measure would enable Green Star to reward specific products that assist in removing VOC from the indoor environment.

The GBCA actively encourages research into Indoor Environment Quality metrics including total VOC impact on human health. It is hoped that research will identify a total tolerance level for typical chemicals and products in buildings and that this level will be set as the maximum for the space.

## Ene-2 'Energy Improvement'

### **Suggestion 1 – Industry Association D**

*"Ene-2 'Energy Improvement' could be improved by: rating products for insulation properties or net energy savings for a building; carpet will give a 5% heat saving compared to hard flooring... [Our organisation] recommends individual product rating and points for insulation, or net energy savings for a building. In this regard we note that carpet typically gives a 5% heating savings compared to hard flooring."*

It is important to note that neither the GBCA nor Green Star test, review or certify products or materials. Green Star does, however, reward products for their contribution to reducing the environmental impact of buildings. Proper energy models would reflect the effect of known finishes. Responsibility for this is not in the realm of the GBCA, but rather in the realm of energy consultant expertise.

## Wat-1 'Potable Water Efficiency'

### **Question/Suggestion 1 – Professional Services – Consultant A**

*"This is restricted to sanitary fixtures (i.e. toilets, showers and basins in bathrooms). These are usually base building items. Should 'kitchenette' fixtures be included? Or, are they not applicable as kitchen taps are used to fill sink with water, and low-flow fixtures would mean it takes longer to fill the sink."*

Kitchenette fixtures are not included because their impact is first, negligible if compared to impact of sanitary fixtures, and second, extremely difficult to quantify because of the lack of benchmark data (as they are rarely metered separately). It is important to note that Green Star rating tools do not assess tenant operations or behaviour which changes from tenancy to tenancy and from building to building.

## Mat-2 'Flooring'

### **Suggestion 1 – Industry Association D**

*"Mat-2 'Flooring' could be improved by making it more relevant to Australian conditions."*

This credit was not adopted from international green building rating tools but developed by the GBCA with the expertise of national organisations credited in the Technical Manual.

## Mat-3 'Walls and Partitions' and Mat-4 'Chairs'

### **Comment/Suggestion 1 – Product Supplier – Manufacturer A**

*"XXX is greatly concerned that other environmentally benign materials such as rapidly renewable content (certified organic is included but this accounts for a very small percentage of products) and locally produced/Australian content are not included in the Materials Category eco preferred content..."*

### **Question 2 – Product Supplier – Manufacturer A**

*"Why should recycled content products not be subjected to scrutiny like all other products?"*

### **Comment/Suggestion 3 – Product Supplier – Manufacturer A**

*"The GBCA has recommended XXX to commission a lifecycle comparison of wool versus pre and post consumer recycled content. However this should not be necessary. Rather, the onus should be on the GBCA to justify why they have gone against sustainable design principles and the Centre for Design, Ecospecifier and the US Green Building Council's LEED system (all of whom the GBCA consulted with in the development of the rating tool), to exclude rapidly renewable content and locally produced content in the first place."*

The GBCA maintains its position that there is no standard definition of 'rapidly renewable' materials and that the short regeneration cycle of a material or the local manufacture of a product do not guarantee a minimal impact on the environment.

As previously advised, the GBCA does not rate or evaluate specific products or materials and relies on third-party certification to validate the claims made by manufacturers and currently, there is no standard third-party certification for rapidly renewable materials.

However, as the above feedback states, the same argument can be applied to materials made from recycled content: recycled content does not guarantee a minimal impact on the environment.

Therefore, the Green Star – Office Interiors v1 rating tool and Technical Manual have been revised so that only products with third-party certification are on the list of options for "eco preferred content" (e.g., FSC timber, certified organic) and are recognised with a higher product score; "recycled content" is no longer on the list of options for eco preferred

content. The GBCA believes this revision eliminates any preferential treatment to product types without third-party certification and pre-empts any future claims by manufacturers that their products should be exempt from third-party certification.

Products wishing to receive full credit under Green Star - Office Interiors v1 – whether made from recycled, rapidly renewable, or other materials – can present certification from third parties, including the Australian Environmental Labelling Association (AELA), to demonstrate their compliance with credit criteria.

**Comment/Suggestion 4 – Product Supplier – Manufacturer A**

*“A conflict of interest has resulted from a large product manufacturer who has representation as a GBCA Board Member, member of the Technical Working Committee and the Marketing Committee (and as the sole representative of the industry) during the development of the GS-OI rating tool.”*

**Comment/Suggestion 5 – Product Supplier – Manufacturer A**

*“The fact that many of this company’s products achieve high credit points in the GS-OI rating tool over sustainable products made locally from eco wool adds weight to our concern.”*

No GBCA Director, or the GBCA Board as a whole, has ever had a conflict of interest during the development and launch phases of the Green Star - Office Interiors rating tool.

Green Star tools are developed by GBCA staff, its Technical Working Group, and other industry experts commissioned or engaged by the GBCA. In turn, this work is reviewed and recommended for approval to the GBCA Board by the Technical Steering Committee, which has not, to date, been comprised of any representatives from the manufacturing or supply sector.

The GBCA has a transparent public stakeholder engagement process, including this public feedback and response.

The elimination of recycled content materials from the list of options of eco preferred content in the Green Star – Office Interiors v1 Materials calculators and Technical Manual (see previous feedback above) removes all perception of preferential treatment to a particular product type, brand, or company.

**Comment/Suggestion 6 – Product Supplier – Manufacturer A**

*“It should be recognised it is possible for a 100% virgin nylon or polyester textile to achieve AELA certification and therefore be regarded as environmentally preferable. 100% synthetic textiles should not be deemed environmentally preferable as they fail to meet many of the sustainable design criteria (such as rapidly renewable or recycled resources) over their lifecycle and are manufactured from a finite and non renewable resource ie petroleum and contain numerous toxic chemicals.”*

As per previous correspondence and discussions the GBCA does not rate or evaluate specific products or materials and relies on third-party certification to validate the claims made by manufacturers.

The GBCA recognises the national and internationally recognised Australian Environmental Labelling Association (AELA) ‘Good Environmental Choice Ecolabel’. AELA conducts thorough research into all of the products that it certifies. If a person or entity is not satisfied with the methods or criteria used by AELA to evaluate and certify products, then the GBCA recommends contacting AELA directly. [www.aela.org](http://www.aela.org)

## Mat-9 'Waste Management for Tenancy Operation'

### **Suggestion 1 – Owner/Developer – Owner A**

*"We agree with the intent of this element but would like to see credit for minimising the use of aluminium altogether – something we intend to do."*

The GBCA agrees with your comment. One of the principles of Green Star is that it addresses the primary sources of negative environmental impact. There is currently a provision for projects to be awarded 'Innovation' points if the project initiative exceeds Green Star benchmarks, as would be with the case of minimising use of virgin aluminium. A significant and innovative demonstration of a projects reduction in virgin aluminium would be considered and may be awarded innovation points.

## Eco-1 'Green Star – Office As Built Certified Building'

### **Question/Suggestion 1 – Professional Services – Consultant A**

*"Allow half the points if building has a 'Green Star – Office Design' Certified Rating."*

As there are no guarantees that initiatives claimed for a Green Star – Office Design rating were implemented, an 'as built' rating is the only appropriate measure for verifying that a fitout is located in an environmentally superior building. The market recognises that a Green Star – Office As Built Certified Rating is evidence of installation. The GBCA encourage contracts to include the need for a Green Star – Office As Built Certified Rating.

## Additional Credits

### **Suggestion 1 – Product Supplier – Manufacturer A**

*"We seek the inclusion of a separate fabrics category in the Green Star – Office Interiors."*

The GBCA agrees with your proposition and will consider ways of incorporating it in the next full revision of Green Star – Office Interiors. Until then, the website now suggests that projects can claim one innovation points if 80% of the textiles procured for chairs, partitions and panels are Certified by the Australian Environmentally Labelling Association's Good Environmental Choice Ecolabel.

## Cost of Green Star

### **Comment/Suggestion 1 – Professional Services – Consultant A**

*"We have generally found the process of Green Star applications to be extremely time consuming and costly from a consultant and project team perspective."*

### **Comment/Suggestion 2 – Professional Services – Consultant A**

*"We have also found that the costs of preparing a submission do not reduce dramatically for subsequent projects."*

### **Comment/Suggestion 3 – State Government C**

*"There is a general awareness within the industry that there will be some costs associated with Green Star. However, it is felt that there may not be a true appreciation of the full extent of costs to pursue certification."*

### **Suggestion 4 – State Government C**

*"It is recommended that [costs associated with Green Star] be presented up-front to the public in a more transparent manner, so that industry can better prepare for the financial (and time) implications associated with preparing a submission."*

International experience demonstrates that the cost of preparing submissions for Green Star assessment will decrease over time as the industry (both the suppliers and the professional service providers) become more familiar with Green Star as a result of Green Star's prolonged presence in the market place and of the GBCA initiatives. The change is understood to take time because even if consultants are becoming more familiar with Green Star as they submit more projects, they are not guaranteed to be dealing with the same suppliers.

It is important to note costs of design activities such as independent commissioning (which can cost up to 2% of construction costs), energy modelling and sourcing green products and material information are not Green Star costs because they should be done as a part of good design practice. These costs are recouped in efficient operation and will further decrease as the product and service providers are more familiar with green building and Green Star. In addition, the GBCA is continually working on streamlining the documentation and submission process and invites expert input into this process.

The GBCA website provides links to many cost and financial benefit studies that confirm these first cost and operational saving statements [www.gbcaus.org](http://www.gbcaus.org)

#### **Suggestion 2 – State Government C**

*"In line with this, it may be useful to conduct stakeholder sessions to identify ways of reducing these costs."*

The GBCA fully agrees with this proposition. In fact, the Stakeholder Feedback process is an initiative for receiving this type of input. In addition, the GBCA regularly reviews the submission process with the panel of Certified Assessors. Starting in 2006, the GBCA will offer a workshop on Green Star submission, where experienced stakeholders will provide insight into making the process easier. In 2006 the GBCA will hold at least one educational forum each month and has updated its website to provide additional educational material.

### **Consistency Amongst Green Star Tools**

#### **Suggestion 1 – Professional Services – Consultant F**

*"I am concerned as a professional user, that the entire suite of [Green Star Technical] Manuals has a consistent format. For example, it would be preferable if formaldehyde matters could be dealt with under the same IEQ numbers across all Technical Manuals."*

The GBCA is aware that certain initiatives are addressed under different categories and credit numbers in different tools (e.g., formaldehyde minimisation, VOC content of materials, shell and core or integrated fitout) and has agreed from the inception of Green Star that the structure should be consistent across Green Star tools. Different building types have different environmental impacts, making it impossible to have the same credits across all tools while new tools are being developed. It is proposed that in 2007 the GBCA will use Green Star's transition into non-office building types to reorganise the structure into core credits (consistent in numbering and name across all tools) and tool-specific credits (credits that are unique to a particular building type).

### **Green Star Assessments**

#### **Suggestion 1 – Professional Services – Consultant B**

*"It is recommended that an opportunity to meet with the [Assessment Panel] is provided [to the project] in order to present the project, outline the submission, and answer any questions."*

The opportunity to resubmit the project for Green Star assessment was introduced in response to the understanding that clarifications may be necessary. To date, it has proved

sufficient while protecting the anonymity of the Certified Assessors. It is important that project teams prepare a submission that can 'stand on its own' and communicate both verbally and graphically, or the assessment process will become more lengthy, cumbersome and expensive.

**Suggestion 2 – Professional Services – Consultant B**

*"It may be worth considering the potential for an alternative method of assessment, whereby a [Certified Assessor] is allocated to a project and meets with the team to review evidence on the spot."*

The Certified Assessors are guaranteed anonymity by the GBCA in order to protect their independence in judgement. In addition, all Green Star tools are created (and constantly improved) to solicit sufficient documentation that would make site visits unnecessary.

**Suggestion 3 – Professional Services – Consultant B**

*"It is recommended that a certain level of flexibility be allowed for in the assessment of credits that reflect the spirit or intent of the credit without penalising proponents for minor omissions."*

The GBCA, via its Certified Assessors, must assess all projects on an equitable basis. The GBCA is reluctant to treat projects on a case-by-case basis and encourages stakeholders to suggest better ways of demonstrating compliance that are appropriate across the entire industry and geographic locations of projects. If these suggestions are appropriate the process will be changed for all projects.

## Green Star Website

**Suggestion 1 – Professional Services – Consultant A**

*"It would be helpful if the GBCA could set up a frequently asked questions section on the web site."*

The GBCA has created *Technical Clarifications* and *Frequently Asked Questions* (for non-technical questions) sections on its website as a part of an overall website reorganisation and revision. This was released on 31 January 2006.