



green star
environmental rating system for buildings

Stakeholder Feedback Report 2005/6 Green Star – Office Interiors v1 and 1.1

This document details the Green Building Council of Australia's response to stakeholder submissions received during the annual feedback period from 1 December 2005 to 30 November 2006. This is a public document.

GENERAL

Green Building Council stakeholder feedback responses either detail corrective action or provide a clarification of the GBCA's justification in keeping the credit and/or credit criteria unchanged. The GBCA incorporates changes into the Green Star suite of tools as a result of feedback and as part of the GBCA's commitment to ongoing internal improvement.

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

In total 38 submissions were received from 1 December 2005 to 30 November 2006.

Green Star rating tools operate through environmental impact categories, and the feedback will continue in this vein:

Management
Indoor Environment Quality
Energy
Transport
Water
Materials
Land Use and Ecology
Emissions
Innovation

The Standard format of the following feedback is as follows:

- *Respondent's quote in italics*
- GBCA response

Similar submissions will be grouped together and the GBCA response to all will appear at the end of the grouping.

The following comments were received in reference to Green Star – Office Interiors v1 or Green Star – Office Interiors v1.1.

Management

General Comments

Category: Owner/Developer Code: 024

'What is missing in Green Star is a focus on Maintainability at the design stage.

I believe that Green Star should rate the Maintainability by assessing the following items:

- Information: an O&M manual must be provided at design stage which addresses . . . 'manufacturers requirements' . . . also the maintenance / inspection requirements for the systems, to maintain the proper operation of the design.

Maintainability: in the O&M manual the following information relating to Maintainability must be addressed:

- Risk assessments and SWMS associated with conducting maintenance*
- tools training requirements for those performing the maintenance-*
 - a guide to the sourcing of parts for maintenance*
 - The cost of the maintenance relative to industry benchmarks*

Good 'maintainability' (a good score) should be based on:

- Detailed 'system' maintenance and inspection requirements being provided*
- Risk assessments and the associated SWMS indicating that the degree of difficulty in accessing...and completing...the work in a safe manner is typical for the industry.*
- The training requirements for the 'maintainer and operator' are clearly defined and training is provided.*
- Any special tools required for maintenance are provided to the operator and where such tools are software based they are open to protocol*
- The parts required to maintain/repair the equipment are available locally and/or have a short lead time for delivery,*
- and/or can be provided by many suppliers or manufactured*
- and/or the provision of critical spares is part of the design.*
- the cost of maintenance is within 5% of the industry benchmarks for the particular category of the building.'*

Agreed;

However, Green Star assigns a rating to the attributes of the physical building and its services, independent of its tenants' operations or behaviour. Operational uncertainty jeopardises the robustness of a Green Star rating, so credits must only include initiatives that can be demonstrated at the design stage of the project.

Green Star - Education PILOT tool will have a separate Maintainability credit where a Facility Manager (FM) has to be involved in the design process. This initiative was addressed because it was both particularly important for educational facilities and could practically be accomplished in that context. If the credit receives positive feedback during the PILOT feedback process, it will be considered for inclusion in the other Green Star tools. Green Star is unlikely to put parameters on issues such as local availability of spare parts, as this would be prescriptive and could act as a disincentive for innovations and new technologies.

Indoor Environment Quality

IEQ-1 'Ventilation Rates'

Category: Professional Services Code: 027

Green Star generally wants to compare "apples for apples". AS 1668.2:1991 allows owners to stipulate population densities. The credit criteria should be based on AS 1668.1 default population values to ensure consistency between projects (i.e. same as Ene-2, ABGR defaults for Green Star rather than project specific values).

The Credit Criteria has been revised; projects are required to use default occupancy rates of AS1668.2 to allow for an equitable comparison of base buildings, unless long-term (15 years minimum) tenant(s) are committed for at least 80% of the NLA.

For full details of revisions to IEQ-1 'Ventilation Rates', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

Category: Professional Services Code: 029

*'The credit criteria for IEQ-1 is quite clear in the case of mechanically ventilated buildings. Up to 3 points are awarded if the minimum outside air is provided at rates exceeding the requirements of AS1668.2. ...However, there are other ways of satisfying the aim of the credit which is to recognise the provision of increased outside air rates, in order to promote a healthy indoor environment. ...Our aim in design is to provide increased outside air **when the building is occupied**. Some HVAC designs can provide substantially more outside air than required by the current credit criteria for the majority of the operating hours and yet currently get no credits.'*

The GBCA believes that rewarding projects for meeting the Credit Criteria for only a percentage (such as 95%) of the operating hours would counteract the Aim of the credit.

Category: Professional Services Code: 031

Under "indoor environment quality" IEQ-1 and 'mechanically ventilated building' more points are awarded for a design that provides 150% of minimum outside air. Green Star should be encouraging the implementation of economy cycles and the early morning purge to flush the building daily and to reduce energy consumption and green house gas emissions.

Green Star addresses each issue separately. The intent of this credit is to ensure that energy saving measures do not occur at the expense of the health and comfort of building occupants. The energy implications of mechanical ventilation are addressed in the Energy category of Green Star, and it is the task of the design team to find a solution that delivers the optimum outcome overall. Please note that natural, mixed-mode and hybrid ventilation solutions are also options for achieving points for the ventilation credits.

Category: Professional Services Code: 031

Under indoor air quality, there has been no reference to levels of air filtration...Industry good practice dictates that some form of air filtration should be provided to protect the heating / cooling coil from becoming dust collectors and clogging up, forming fungi growths and reducing air flow...Also...the GBCA has assumed the outside air is 'clean'.. . outside air does contain dust particulates and may contain fumes and odours. It is therefore essential to provide air filtration for . . naturally ...and mechanically ventilated systems.

On this issue, Green Star relies on the Australian Standard (AS1668.2-1991) which takes filtration into account.

IEQ-2 'Carbon Dioxide Monitoring and Control'

Category: Professional Services Code: 027

CO₂ ppm level should be specified.

The parts-per-million (PPM) levels could always be determined by calculations based on AS1668.2002. However, reference set points (in PPM) have been established to correlate with the ventilation rates in IEQ (1) 'Ventilation Rates', as follows:

- 800 PPM for 50% increase;
- 700 PPM for 100% increase; and
- 640 PPM for 150% increase.

For full details of revisions to IEQ-3 'Carbon Dioxide Monitoring and Control', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

IEQ-3 'Daylight'

Category: Professional Services Code: 026

Why is daylight factor measured at Finished floor level? Perhaps it could be measured at desk height.

Category: Professional Services Code: 027

Why specify at floor level rather than at 720mm (typical desk height).

The Credit Criteria for all credits that address lighting within Green Star has been revised to stipulate calculations at the desk-height level of 700mm AFFL, as per AS1680.

For full details of revisions to IEQ-3 'Daylight', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

IEQ-4 'Daylight Glare Control'

Category: Product Supplier Code: 037

Whilst it can be complicated by having height adjustment on the work surface or Sit to Stand the general rules seem to be:

Visual distance from face to screen

This should be adjustable but should cover 450-700mm

Height adjustment

This should be able to be done from a seated position

The vertical adjustment would need to be 130-150mm

Light deflection

Again should be able to be done from a seated position

Tilt should be +/-10 in all directions

The thing about "from a seated position" is that people are basically lazy and they will not use the adjustability of their monitor arm if they have to get off their seat to do it.

Category: Product supplier Code: 020

The 50cm vertical adjustment range is not practicable to use.

The maximum vertical adjustment would be (20+15=) 35cm, which would accommodate more than 90% of the population.

... a practical approach for the credit point would be to have a maximum of 35cm vertical adjustment and 50cm horizontal adjustment.

The Credit Criteria have been revised as follows:

One point is awarded where all workstation monitors provided as part of the tenancy fitout are flat-screen and are mounted on an adjustable arm with at least three degrees of freedom that enables the monitor to a) be pivoted (at least 10 degrees in all directions), b) be displaced 50cm in the horizontal plane and c) be displaced at least 35cm in the vertical plane; adjustment should be enabled from a seated position.

For full details of revisions to IEQ-5 'Daylight Glare Control', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

IEQ-6 'Electric Lighting Levels'

Category: Professional Services Code: 027

Why 900mm rather than desk height of 720mm and in any case why different to [Daylight] level.

The Credit Criteria for all credits that address lighting within Green Star has been revised to stipulate calculations at the desk-height level of 700mm AFFL, as per AS1680.

For full details of revisions to IEQ-7 'Electric Lighting Levels', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

IEQ-8 'Individual Comfort Control'

Category: Product supplier Code: 025

This credit could be improved by the provision of points for:

- *the use of carpets as a sink for airborne particulates including allergens.*
- *the use of wool carpet which acts as a natural humidity buffer, absorbing water vapour in times of high humidity and releasing it in times of low humidity.*

This credit rewards designs that provide workstations with individual control of supply air rates, air temperature or radiant temperature. This credit does not address allergens or material selection.

IEQ-10 'Internal Noise Levels'

Category: Product supplier Code: 025

This credit could be improved by the provision of a point for the use of carpet which has excellent acoustic absorption properties in terms of both reverberation and attenuation of noise. Airborne noise, surface noise and impact noise are all reduced by the use of carpets, as is the transmission of noise to adjoining spaces.

Any mechanism for improving acoustic comfort should be permissible for inputting into modelling software for the purpose of acoustic modelling for Green Star, dependent on software allowances.

IEQ-11 'Volatile Organic Compounds'

Category: Product supplier Code: 025

IEQ-11(VOCs) – assumes carpet to have a negative effect on air quality by automatically awarding 2 points ...if low VOC carpet or "no carpet is installed".

This credit could be improved by:

- *The removal of the credit of 2 points if "no carpet is installed".*
- *Carpets generally are low emitters of VOCs, particularly in comparison with many alternative flooring materials.*

Carpets are not singled out under Green Star and IEQ11 does not reward absence of carpet per se. Absence of carpet ensures that no VOCs will be emitted from this source. Carpet is the primary floor covering in offices and therefore may be regarded as a significant source. Other potential sources of VOCs are also similarly addressed.

- *The provision of points for the use of carpet rather than hard or resilient flooring in consideration of the VOC emissions over the life of the fit-out, with particular reference to the use of chemical cleaning agents.*
 - *Carpets require a fraction of those required for hard or resilient floors. The chemical agents used for hard and resilient floors are sources of more VOCs than the simple detergents required for carpet cleaning. Wool carpets in particular do not require any additional protective treatments as they naturally resist staining and soiling.*
- *The provision of points for the use of wool carpets.*
 - *Wool carpets act as sinks for many of the commonest indoor air pollutants including formaldehyde, NO_x and SO_x. These air contaminants are permanently and harmlessly absorbed by wool carpets. (See also IEQ-12 below.)*

This does not address the aim of the credit, which targets reduction at source, rather than mitigation subsequent to emission. In addition, the GBCA is not aware of any international consensus regarding the efficacy of wool carpet at absorbing indoor pollutants such as formaldehyde, NO_x and SO_x.

Category: Product supplier Code: 023

Suggestions as per EU Directive; interior walls and ceilings and interior / exterior trim and cladding points for wood and metal, this is the one we are wanting to be shown for gloss and semi gloss for trim at 75g/l. Suggestion would be to do the matt, low sheen, semi gloss (satin) and gloss for walls at 16g/l.

The Credit Criteria has been expanded address "Timber varnishes, stains and finishes"; the maximum TVOC content has been set at 40 g/l of product.

Category: Product supplier Code: 033

(The company's) manufacturer has supplied a VOC test result from a UK testing laboratory that uses the Oeko-tex Test Method and Standard. This is a comprehensive test for VOCs and we believe of equivalent relevance to the US tests currently approved.

We are therefore requesting that the Oeko-Tex Method and Standard be considered and approved as an acceptable alternative to the two US tests currently specified by Green Star.

Following the receipt of this feedback, the GBCA has requested details of the test standard and testing method from this product supplier and it is the GBCA understanding that this information will be submitted for the GBCA review in March 2007.

IEQ-12 'Formaldehyde Minimisation'

Category: Product supplier Code: 025

This credit can be improved by the provision of points for the use of wool carpet. Wool carpets do not contain formaldehyde and have been shown to absorb formaldehyde from indoor air, permanently and harmlessly.

This does not address the aim of the credit, which targets reduction at source, rather than mitigation subsequent to emission.

Category: Product supplier Code: 034

The standard the architect has quoted for E0 MDF powder coated work surfaces is JIS 5905:2003 Fibreboards. We have been advised that our standard for E0 particle board (for laminate board) is JIS A 5908:2003 Particleboard. I am hoping the only difference ecologically is that one standard looks at MDF and the other at particle board but as they are both E0 and both wood composite products, both meet Green Star requirements?

This submission was reviewed in 2006, the affirmative response was posted on the website and this product supplier was informed of the outcome.

Additional Guidance of Green Star – Office Interiors v1.2 has been expanded to include additional testing standards and methods that can demonstrate compliance with the Credit Criteria:

- AS/NZS 2269:2004 'Structural Plywood' (test method AS/NZS 2098.11);
- JIS A 5908:2003 for any product type (e.g. particleboard);
- DIN EN 717-1 (actual emissions by chamber testing)

But not the following testing standards or methods of analysis:

- DIN EN 717-2 (potential emissions only by gas analysis); or
- AS/NZS 1859.2:2004 'Dry Processed Fibreboards' (includes MDF) or 'Particleboard' test method AS/NZS 4226.16) (does not provide the desired emissions rate).

For full details of revisions to IEQ-14 'Formaldehyde Minimisation', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

Category: Professional Services Code: 035

Three plywood products have been specified on project x. interior fitout. The products are E1 rated as per their certification. The formaldehyde emissions are tested to the European Standard DIN EN 717-2 however, the GBCA Technical Manual references EN717-1. It is our understanding the '2' determines formaldehyde discharge by gas analysis method however '1' is by chamber method.

We have been unsuccessful in finding an Australian nor imported plywood product which complies with the testing standards as stated in your Technical Manual. Are the GBCA aware of such a product in the current marketplace?

Will the testing method of formaldehyde emissions by gas analysis DIN EN 717-2:1995 be accepted by GBCA, for attaining 1 point in the IEQ-12 formaldehyde Minimisation section?

This submission was reviewed in 2006, the affirmative response was posted on the website and this product supplier was informed of the outcome.

Additional Guidance of Green Star – Office Interiors v1.2 has been expanded to include additional testing standards and methods that can demonstrate compliance with the Credit Criteria:

- AS/NZS 2269:2004 'Structural Plywood' (test method AS/NZS 2098.11);
- JIS A 5908:2003 for any product type (e.g. particleboard);
- DIN EN 717-1 (actual emissions by chamber testing)

But not the following testing standards or methods of analysis:

- DIN EN 717-2 (potential emissions only by gas analysis); or
- AS/NZS 1859.2:2004 'Dry Processed Fibreboards' (includes MDF) or 'Particleboard' test method AS/NZS 4226.16) (does not provide the desired emissions rate).

For full details of revisions to IEQ-12 'Formaldehyde Minimisation', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

IEQ-15 'Indoor Plants'

Category: Professional Services Code: 026

Indoor plants - can plants offsite be counted to offset carbon emissions?

The aim of this credit is not CO2 reductions as this is addressed in the energy category. In addition, plants offsite do not meet the Aim of this Credit, which is concerned with indoor comfort and occupant wellbeing.

Category: Product supplier Code: 025

IEQ-15 (Up to 2 points available for use of indoor plants to filter air)

This credit can be improved by recognising that indoor plants are neither the only, nor the most effective indoor air filters, and by awarding points for the use of other proven filters such as wool carpets.

IEQ-15 is concerned with perceived comfort, satisfaction, stress reduction etc. of occupants, to which plants have been scientifically demonstrated to provide a positive contribution. In addition, in relation to indoor air quality, plants can neutralise pollutants rather than trap them.

Category: Industry Association Code: 018

Credit criteria density ratios must be calculated on unit measurement (ie. m²), not per work setting/people ratio. This keeps in line with the scientific research model calculations of VOC removal rates. Therefore 1 point awarded for 'per 30m²' or 2 points for 'per 15m²' distributed across the NLA.

The Credit Criteria has been revised as follows:

- Density ratios are no longer calculated on work setting/people ratio, but rather on unit measurement (i.e., m²); this is in line with the scientific research model calculations of VOC removal rates; and
- 1 point awarded for 'per 30m²' or 2 points for 'per 15m²' distributed across the NLA.

For full details of revisions to IEQ-15 'Indoor Plants', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

Category: Industry Association Code: 018

Plant size determination to be flexible to keep in line with various industry situations across the country – for instance a large plant (300mm – 12in) can also be considered 250mm – 10 in and can be calculated using a 1.5x weighting'. Several international studies based on Psychological Response Basis have shown that building occupants show positive response and indeed reduced short term absenteeism and increased productivity etc. by having plants simply in line of sight without adhering to specific density / size ratios.'

The Credit Criteria has been revised to stipulate that at least one plant must be in the line of sight from every workstation. In addition, it has been clarified that the plants do not have to be in individual pots, but rather be provided at the same ratio of planting surface to work settings, distributed over the NLA (e.g., a 0.3m-diameter pot provides surface area of 0.706m², so a planter (unless it houses individual pots) that is 30cm by 94cm will count as four plants).

For full details of revisions to IEQ-15 'Indoor Plants', please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.

Energy

Ene-1 'Energy Efficiency'

Category: Product supplier Code: 025

This credit can be improved by the provision of points for the use of carpet. Carpet has positive effects on energy use through its insulation qualities. Tests have demonstrated energy used for heating/cooling is significantly reduced by through the use of carpet.

Any mechanism for insulation should be permissible for inputting into modelling software for the purpose of energy modelling for Green Star, dependent on software allowances. Therefore, carpet can be rewarded for its insulating properties.

Category: Professional Services Code: 027

DEUS are constantly changing their protocol. Suggest you replace "January 2004 version" with "Version Current 3 months before submission date".

The GBCA will provide the version required by the Technical Manual on the website. Allowing the project to use different versions could jeopardise consistency of assessment.

Ene-2 'Energy Improvements'

Category: Professional Services Code: 026

Energy Improvements - Maybe purchasing accredited green power could get points. Purchasing green power should be encouraged as well as reducing energy consumption?

Green Star assigns a rating to the attributes of the physical building and its services, independent of its tenants' operations or behaviour. Operational uncertainty jeopardises the robustness of the Green Star brand, so credits must only include initiatives that can be demonstrated at the design stage of the project. While a commendable initiative for on-going building operation, subscription to the 'green energy' option with the utilities provider cannot be deemed and rewarded as a building attribute.

Category: Professional Services Code: 031

Under Ene-2, up to 15 points can be awarded 'where it can be demonstrated that there is an improvement in energy efficiency and a reduction of greenhouse gas emissions above the conditional 4star ABGR. ...' How do you do an ABGR star rating assessment when there is no consumption data and the building is in planning stages... asking ...in the design stages...appears inconsistent and unachievable.

As stated in the Technical Manual for both Green Star – Office Design v2 and Green Star – Office As Built v2, the ABGR methodology (outline within the 'Validation Protocol for the use of Computer Simulations, January 2004') is used for energy modelling, but not the ABGR certified rating.

Transport

Tra-1 'Provision of Car Parking'

Category: Professional Services Code: 031

Tra-1 provides points if car parking spaces provided on the site are less than the maximum local planning allowances. Generally local planning authorities state a minimum number of car parking bays...not a maximum. To provide less than the minimum would contravene the Residential Code Design Requirements...This question appears to be slanted and should just give a point for achieving the minimum number of car park bays and additional points for reducing the number of car bays via reciprocal usage arrangements.

The Credit Criteria states, "1 point = at least 25% less than the maximum local planning allowances or **within 10% of the minimum local planning allowance** if only a minimum is stipulated; and 2 points = at least 50% less than the maximum local planning allowances, **or no more than the minimum local planning allowances** if only a minimum is stipulated."

Tra-1 'Commuting Public Transport'

Category: Professional Services Code: 031

Tra-4 awards up to 5 points for proximity to public transport. So, a development may be penalised because of its location relative to public transport or because the transport authority does not have a bus stop near the development or because the service does not run regularly? This appears to me to be ludicrous as a developer has no control over the location of bus stops or the frequency of the buses.

Green Star credits are established on the basis of environmental impact, and emissions to the atmosphere from automotive commute are not reduced by location or other similar factors. In addition, a developer does have control over the location of a proposed development and that is where this credit aims to encourage location near existing or proposed public transport links. It also aims to capitalise on the simple law of demand and supply by encouraging interest in securing additional public transport provision, thereby increasing public transport demand.

Water

Wat-1 'Occupant Amenity Potable Water Efficiency'

Category: Product supplier Code: 025

This credit can be improved by the provision of points for the use of carpet.

- *Water usage in cleaning hard or resilient floors can be between 12 and 43 times that required for carpet cleaning, depending on regularity/traffic densities.*
- *This also indicates the difference in use of chemicals (See IEQ-11 comments).*

This would not fulfil the Aim of this Credit which is to reduce potable water use. The Credit Criteria state that points are awarded where it is demonstrated that predicted potable water consumption for sanitary use within the building has been reduced, based on fixtures, fittings and grey/black/rain-water collection systems.

Materials

The GBCA acknowledges and appreciates all comments received regarding materials; these comments have been considered and have resulted in the GBCA undertaking an in-depth review of the Materials category within Green Star – Office Interiors.

As a result, Office interiors v1.2 will be released without any changes to the current Materials category. Once issues surrounding the recognition of third-party certification bodies and the role and criteria of the materials calculators have been resolved, the GBCA will release Green Star - Office Interiors V2.

General Comments

Category: Product supplier Code: 014

Which linoleum product could be substituted in a wet area and fully comply with the slip and performance criteria of the BCA?

The GBCA is not in a position to provide design advice or recommend any specific product, technology or organisation. Its role is to identify best practice standards across environmental issues related to building, and not to prescribe solutions to those issues. Such an approach encourages market competition for solutions. It is up to the design team on each project to determine the most appropriate design strategies for each project.

Category: Product supplier Code: 014

XXXX has sought and gained accreditation to the BRE 'Red Book' grading system. This is a broad and in depth evaluation into the environmental worth & impact of building products in a cradle to grave and beyond evaluation. Does the GBCA ever intend to recognise in depth studies on such a nature?

The GBCA is a partner in the Building Assemblies and Materials Scorecard project aimed to develop a common methodological approach for scoring the environmental performance of building assemblies over their whole life cycle. Developing a robust methodology for the Australian context will take at least one year, but once such methodology is agreed upon, the GBCA will be able to integrate lifecycle assessment outcomes into Green Star.

The following feedback was received and due to the reasons cited above, will not be specifically addressed within this document:

Category: Product Supplier Code: 001

'Approximately 80% of the content of our upholstered lounges are manufactured from SUSTAINABLE RAPIDLY RENEWABLE materials in the form of timber and paddings. After reading your rating tool, I was shocked to find there was no allocation at all for rating points for these materials. It appears that green star rating points will be minimal for our furniture.'

'I would also like to know if you have any intention in the near future to include sustainable rapidly renewable content in the materials category of your rating tool.'

Category: Product supplier Code: 004

'The GBCA has maintained that the reason for not including rapidly renewable materials in the options for Eco Preferred content is because there is no standard definition of 'rapidly renewable'. Rapidly renewable is widely known to indicate a material that regrows in a short time period. Ecospecifier defines rapidly renewable as 'a resource that regrows in less than 3 yrs'. The US Green Building Council's LEED system defines rapidly renewable materials as those 'that are typically harvested within a ten yr or shorter cycle'.

...The GBCA's criteria effectively discriminated against all rapidly renewable and locally produced content, which in the case of textiles, discriminated against wool, as there is almost no organically certified textiles available. This decision also preferred, in the case of textiles, imported recycled

PET (polyester) textiles, as almost all recycled PET is produced overseas. Whilst the GBCA's position changed at the beginning of this year, this decision has never been satisfactorily explained or justified.

'... Textiles certified by GECA are not necessarily a good environmental outcome.'

Category: Product Supplier Code: 003

In MAT 6, Office storage units made from metal and/or recycled plastic are disadvantaged similarly to example 1, since metals or recycled plastic is not defined as 'eco-preferred' content in Greenstar, without prior GECA certification.

In MAT 4, Office chairs are commonly not designed with a wood content. However office chairs which do not contain wood in their design are disadvantaged in Greenstar without GECA certification.

Category: Product supplier Code: 004

'The GBCA now recognises that 'recycled content does not guarantee a minimal impact on the environment'. However, the GBCA's decision to revise the Green Star – Office Interiors rating tool so that 'only products with 3rd party certification . . . are on the list of options for Eco preferred content' is no better. . . it is possible for a 100% virgin nylon, polyester or acrylic textile to achieve 3rd party certification with the AELA's textile standard.'

'As the GBCA currently recognises one certification body, GECA, which in the case of textiles rewards "business as usual", XXXX would like to submit the following benchmark third-party certification bodies to be recognised by the GBCA –

Sustainable Textile Standard: The Sustainable Textile Standard is a collaborative effort between the Association of Contract Textiles (ACT), GreenBlue - a non-profit organisation dedicated to the advancement of 'cradle-to-cradle' Design Principles, and NSF International - a Standards Development body in the U.S.A.

MBDC Cradle to Cradle Certification: The MBDC Cradle to Cradle certification is applicable to furniture and textiles. The certification addresses important product life cycle issues such as safety of chemicals, resource utilisation, energy, water, recycling and social responsibility.'

Category: Product supplier Code: 005

'Would like to submit the following 3rd party certification body for recognition by the GBCA: Lederinstitut Gerberschule Reutlingen (LGR).'

'Would like to submit the following 3rd party certification body for recognition by the GBCA: The EU flower.'

Category: Product supplier Code: 008

'Would like to submit the following 3rd party certification body for recognition by the GBCA: Australian Paint Approval Scheme (APAS). Also mention AGO Greenhouse friendly program?'

Category: Product supplier Code: 009

Would like to submit the following 3rd party certification body for recognition by the GBCA: McDonough Braungart Design Chemistry (MBDC) certification

Category: Product supplier Code: 010

'Would like to submit the following 3rd party certification body for recognition by the GBCA: McDonough Braungart Design Chemistry (MBDC) certification.'

Category: Product supplier Code: 028

Recommendation: to recognise the relevance and importance of ceiling systems to the environment by including ceilings with stand alone credits in rating tools for offices – new and existing, health and education.

Eco-Preferred Content

Eco-preferred content is certified for its merit by a third party recognised by the GBCA. The current list of third party certification bodies recognised by the GBCA, as well as the GBCA criteria for the recognition of third party bodies is available on the website (under Green Star, products): <http://www.gbcaus.org/gbc.asp?sectionid=123&docid=987>

Any third-party certification organisations seeking recognition within Green Star should submit the following:

1. A description of the certification body and of the certification system it administers;
2. Evidence of the independent governance of the certification body;
3. A description of the organisational structure of the certification body;
4. A description of the environmental performance criteria within the certification system, and the mechanism for criteria development; and
5. A description of the verification methods.

The GBCA is currently undertaking a thorough review of the Materials Calculators. Until this review is complete, no changes will be made to the Materials category. The following feedback was received and due to the reasons cited above, will not be specifically addressed within this document:

Category: Product Supplier Code: 001

I cannot recommend architects and interior designers to specify local Australian sustainable wools for upholstery on our furniture as no rating points apply. However, rating points for imported recycled PET fabrics are available.

Category: Product Supplier Code: 002

In our opinion the definition of Eco-preferred is too narrow, and does not adequately reward good environmental products without AELA certification. Manufacturers of finished product and component parts e.g. textiles / substrates – outside of organic and timber are being more or less forced to have products certified by GECA. .. for our products to contribute to Greenstar Credits rating. There should be a number of certification or audit mechanisms e.g. Ecospecifier.

Category: Product Supplier Code: 003

The narrow definition of eco preferred content disadvantages the Greenstar score of several common furniture designs, and well as examples of products designed with sound environmental attributes. ...

... despite a product meeting all other Greenstar product criteria except eco-preferred content, Greenstar effectively penalises product which have not obtained the GECA certification. Not every manufacturer is in a position to be able to allocate the time or funding to obtain GECA certification.

Category: Product supplier Code: 004

XXXX recommends a separate credit for textiles and leathers and the definition of Eco preferred content to be as follows:

- *rapidly-renewable content;*
- *recycled content*
- *locally produced*

XXXX recommends the GBCA recognise the following benchmark third-party certifications for textiles, in lieu of the GECA textile standard:

- *Sustainable Textile Standard*
- *MBDC Cradle to Cradle Certification*

XXXX recommends that innovation points not be awarded if 80% of the textiles procured for chairs, partitions and panels are certified by the Good Environmental Choice label. Textiles 3rd party certification through GECA are not necessarily a good environmental outcome.

The GECA eco label is a single label / mark where products either pass or fail. The lack of a graded system inhibits innovation as the ecolabel does not recognise companies that go beyond the standards set. A benchmark product that performs considerably better than competing products gains no advantage, as the benchmark product will carry exactly the same endorsement as a more damaging product. Therefore..., there is no incentive for manufacturers to go beyond the standards set by GECA, which is (sic) not particularly high in the first place.

- *Even though the organisation [GECA] is structurally separated, it is the one organisation that sets the standards and conducts the verification.*
- *Whilst it is important that all stakeholders such as certified manufacturers have input into the development of standards, this could lead to self-fulfilling standards. The level of expertise for manufacturers in setting environmental standards is questionable.*

Category: Product Supplier Code: 012

We seek the inclusion of a separate fabric category in the Green Star Office Interiors Rating Tool. Although GECA certified furniture is recognised by the GBCA, there is no incentive for designers to choose a GECA certified fabric and therefore no benefit to companies that are genuinely doing the right thing...It is a notoriously dirty industry and there will be no progress made while companies can circumvent Green Star and continue marketing themselves as green.

Category: Product supplier Code: 004

The GBCA has misunderstood the reasons to include locally produced content on options for eco preferred content. The reason is because this contributes to local employment and income as well as reducing the transportation impact when importing products.

Category: Product supplier Code: 004

We again ask the GBCA to include rapidly renewable content, recycled content and locally produced content in the list of options for Eco Preferred Content."

Mat-2 'Flooring'

Category: Product supplier Code: 025

This credit can be improved by:

- *Recognising NZ carpet wool as Eco-preferred content (EC).*
- *NZ wool is rapidly renewable resource*
- *NZ agricultural practices lead the world in efficiency and environmental responsibility*
- *NZ carpet wool is a by-product of the sheep meat industry and as such it can be argued that carpets produced from NZ wool are using industrial waste from another industry sector.*
- *Wool is biodegradable...*
- *Wool carpets can be (and are) used to stabilise soil and provide mulch in areas of soil degradation and erosion. The carpet readily rots down and is a useful source of nitrogen for the soil due to its protein composition. Wool carpets are also being used as soil stabilisers and mulch on motorway embankments and as mulch on vineyards.*
- *Recognising objective, scientifically based independent testing and certification schemes for carpets as the basis for durability (DU) rather than relying on manufacturers' warranties. and the Australian Carpet Classification Scheme.*
- *Reconsidering the preference for modularity (MO) with reference to carpets.*

Materials calculators consider a variety of criteria; however use outside of buildings for non-standard applications such as soil stabilisation and vineyard mulch do not fall within the remit of Green Star.

The GBCA is not in a position to provide design advice or recommend any specific product, technology or organisation. Its role is to identify best practice standards across environmental issues related to building, and not to prescribe solutions to those issues. It is up to the design team on each project to determine the most appropriate design strategies for each project.

The GBCA is currently undertaking a thorough review of the Materials calculators. Until this review is complete, no changes will be made to the materials category.

Mat-10 'PVC minimisation'

Category: Industry Association Code: 013

All building material and product manufacturing - and their respective product life cycles - have environmental impacts. In taking a discriminatory stance against PVC, the Green Building Council is saying that those caused by manufacturing and using PVC and PVC building products are significantly greater than the impacts of other materials.

... It's not the material that's relevant. It's how the material is used that influences the environmental impact. All products should be selected on the basis of their fitness for purpose, life cycle cost and environmental performance for each application, and reputable science and life cycle assessment should be used to assess environmental impacts.

Full life cycle assessment, by definition includes manufacture and end-of-life, combined this with the statement asserting that "it's how the material is used that influences the environmental impact", seems to create a conflict in the comment.

Further, the US Green Building Council (USGBC) Technical and Scientific Advisory Committee (TSAC) report issued in March 2007 clearly indicates that when looked at from a cradle-to-grave perspective, PVC materials consistently ranked among the worst for cancer-related impacts.

Action sought: that Green Star material credits be material neutral but define key performance criteria for key applications/assembly in use in the building

The GBCA agrees that the role of Green Star credits is to identify the problem, focus on the big ticket item(s) that cause the problem and establish measurable criteria for rewarding solutions.

To minimise risk to human health from buildings, credits focus on irritants/allergens (i.e., VOCs, equipment fumes and mould), carcinogens and mutagens (i.e. formaldehyde, equipment fumes, PVC and asbestos), and teratogens (agents that cause abnormal cell masses during foetal growth causing physical birth defects, i.e. formaldehyde). While the source of mould is humidity and thus can be addressed through the design of the ventilation system, the source of the problems linked to PVC is, understandably, the material itself.

The GBCA is considering expanding this credit to cover toxicity more broadly. The GBCA would welcome industry input with respect to other sources of carcinogens and mutagens within the Australian built environment, with the prospect of potentially addressing additional source control measures within Green Star.

Vinyl Chloride Monomer (VCM), the precursor to PVC, is a known human carcinogen for those at risk of long term (in the order of years), high level occupational exposure in the manufacture of PVC. When this was discovered in the late 1960s/early 1970s, industry immediately collaborated to address the risks and production processes were changed to reduce the risk of exposure. Today VCM is well controlled in the workplace and exposure levels are very low. There has been no case of the specific cancer – angiosarcoma of the liver – in workers who began employment in the industry since the mid-1970s. The industry globally maintains a register of liver angiosarcoma incidence among PVC workers, and this information is made available to health and regulatory authorities. PVC production is just one building material manufacturing process in which hazardous substances are involved. There are many others. The key question is whether such occupational exposure risks are well regulated and well managed. In the case of VCM this is so.

The GBCA notes that in the recent USGBC TSAC study, PVC materials consistently ranked among the worst for cancer-related impacts when assessed to include occupational exposures.

Australian Vinyls Corporation is the largest point-source emitter of vinyl chloride in Australia because it is the only manufacturer of PVC in Australia. Australian Vinyls contributes just 13.7% of total vinyl chloride emissions reported. The remaining 86.3% comes from a wide variety of sources. The bulk (61%) is associated with waste disposal and landfill and is unrelated to PVC. It is well known that the breakdown of a range of products in landfill, e.g. chlorinated solvents, releases vinyl chloride. The fact that a single manufacturer – the only manufacturer in Australia - is the largest single source emitter is hardly surprising and no reason to discriminate.

The overall contribution of PVC to dioxin emissions from landfills and backyard burning is significant enough to be a human health hazard. Findings in the USGBC TSAC report states the following:

When end-of-life with accidental landfill fires and backyard burning are added, the additional risk of dioxin emissions puts PVC consistently among the worst materials studied for human health impacts, unless the end-of-life emissions from landfill fires and backyard burning are near the lower end of the wide range of uncertainty about these emissions. When end-of-life are near the mid-range value or nearer the upper end of this range, landfill fires account for at least 80% of the total end-of-life dioxin emissions for PVC.

The GBCA asserts that its position on PVC is at least partly based on the precautionary approach. One well accepted definition of the precautionary approach is described in Principle 15 of the Rio declaration which states that "in order to protect the environment, the precautionary approach shall be widely applied by States according to their capability. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". The difficulty with adopting a more extreme interpretation of the precautionary approach is that it requires proof of absence of risk - an impossibility for any material or substance! ... The environmental impacts for PVC's life cycle have been found to be no more significant than the alternative materials... To promote the reduction of use of a well studied material in favour of less studied materials does not promote sustainability, merely different philosophical choices.

While from the technical point of view, human health impacts can be distinguished from environmental impacts (and the USGBC TSAC report does make this distinction), both are inextricably linked to the definition of a green building as represented by Green Star. If a building or fitout aspire to be green, they should not be able to overlook the potentially grave human health risks posed by the choice of materials in the built environment.

PVC is not a 'primary' or significant contributor to dioxins in the environment. Although dioxins are produced in minute quantities during the production of PVC, PVC is responsible for less dioxin generation than many other processes. Dioxins have been associated with the life cycles of various other building products and some of these manufacturing processes are known to be significantly larger sources of dioxins than the life cycle of PVC... Action sought: that the Green Building Council of Australia cease incorrectly associating dioxins levels in the environment with PVC. If the reduction of environmental dioxins is a goal of the GBCA, the organisation needs to correctly identify the key contributing building materials and take appropriate action.

The scope of Green Star is limited to the built environment, and the GBCA goal is to minimise negative environmental impacts (such as toxins in the environment) from development. As stated on the Vinyl Council website, over 60% of the PVC manufactured in Australia is used in the building sector.

As indicated in last year's public feedback on this same topic, the GBCA welcomes any data to assist in determining which building materials contribute significant amounts of persistent organic pollutants to the environment. To that end, the GBCA has identified that cement kilns co-fired with hazardous waste have been documented to have extremely high dioxin emissions and as a result, the Green Star credit that addresses recycled content of concrete will no longer reward projects with cement or cement replacement from these kilns.

In addition, the GBCA is considering expanding this credit to cover toxicity more broadly. The GBCA would welcome industry input with respect to other sources of carcinogens and mutagens within the Australian built environment, with the prospect of potentially addressing additional source control measures within Green Star.

Vitrified clay (VC) pipes are recommended as an alternative to PVC sewer pipe, yet have been one of – if not the – biggest source of maintenance issues for water authorities around the world...

- *Zinc pipe is not available in Australia...*
- *Galvanised steel may not always be suitable ...*
- *Cast iron raingoods are not readily available in Australia...*
- *Copper pipe is very expensive...*
- *Steel is unsuitable as a conduit material...*
- *Non-PVC electrical cables do not necessarily perform as well as PVC...*

...Action sought: that the GBCA remove these references to alternatives as it has the potential to steer the market into products that are not suitable for the purpose and are not proven to be better for the environment or the sustainability of the building. Reiterating the GBCA stance on PVC does not address this issue.

The GBCA agrees to clarify that reference to alternative materials is given solely for the purpose of informing the project teams. The language will be clarified to communicate that at no time does the GBCA recommend or endorse a product, or the listing directly or indirectly guarantee that any product made from a listed material will be fit for purpose.

Impact types are addressed separately in Green Star (e.g. water leaks are addressed in the Water category). As with all Green Star credits, it is up to the design team on each project to determine the most appropriate design strategies for each project.

Aluminium has high embodied energy. The production of aluminium is also highly dependent on the chloralkali supply chain as it requires caustic soda. Caustic soda cannot be produced without corresponding production of chlorine and vice versa. There is no evidence that the life cycle of aluminium pipe is better environmentally than that of PVC pipe.

The GBCA agrees that aluminium has a high embodied energy and relies on caustic soda for production. The GBCA will investigate this issue further with the prospect of potentially addressing within Green Star the environmental impacts of aluminium as they pertain to the built environment.

In terms of materials, the greatest environmental impacts (in no particular order) are from sand & aggregate, steel, cement & concrete, timber, glass, aluminium, and bricks. All plastics account for merely 1-1.5% of construction materials by weight, therefore removing PVC will only have negligible effects on the sustainability of buildings or may in fact reduce it if unsuitable alternatives are used.

The GBCA disagrees that comparing the weight of materials such as concrete and bricks to the weight of plastic can be used to argue that PVC has negligible impacts.

In addition, the key performance attributes that are relevant for materials are durability, local sourcing and low maintenance. Given 25% of all materials are used in maintenance and improvement, preferences should be for lower maintenance materials and encouragement of longer timeframes before refurbishment.

Noted.

Category: Product supplier Code: 014

The production of PVC flooring products can incorporate the use of various plasticisers and types of plasticisers. Each has varied and very different environmental impacts. Do you not differentiate between the qualities of the constituent of materials?

The PVC Minimisation credit in the Green Star tools does not distinguish between types of plasticisers used. As studies in recent years have indicated, the use of phthalates has a significant human health risk. The GBCA would welcome credible evidence that certain

plasticisers do not pose the human health risks associated with PVC. Should such plasticisers be legitimately identified, the GBCA will consider the modification of this credit or the inclusion of another credit to specifically address the use of plasticisers.

Category: Supplier Code: 014

Is it your intention that the preclusion, or the penalty for the use (in the PVC minimisation aspect of Green Star v2) of 'PVC backed carpets' specifically advantages bitumen backed products, in the case of carpet tiles specifically?'

...Given that the use of carpet tiles in major office projects is growing, is it the intention by your broad blanket statement in Green Star – Office Design v2, that bitumen is preferred by any type of PVC product?

...Which linoleum product could be substituted in a wet area and fully comply with the slip and performance criteria of the BCA?

There is no penalty system within Green Star. Projects chose which credits to claim to achieve points, at no time are points deducted for any initiative or lack thereof.

The GBCA is not in a position to provide design advice or recommend any specific product, technology or organisation. Its role is to identify best practice standards across environmental issues related to building, and not to prescribe solutions to those issues. Such an approach encourages market competition for solutions. It is up to the design team on each project to determine the most appropriate design strategies for each project.

Category: Product supplier Code: 014

Some carpet tiles use a percentage of recycled PVC product as the backing system, some even offer a wholly recycled PVC backing system, do you not offer any encouragement for the recycling of PVC product, but only a blanket condemnation despite LEED TSAC study on PVC products by USGBC.

At present, Green Star does not give any recognition to recycled PVC in products for buildings as it is not clear that recycled PVC does not pose the same risks to human health as virgin PVC does. The GBCA is not aware of any part of the USGBC final TSAC report that specifically addresses recycled PVC.

The GBCA would welcome robust evidence that indicates that when recycled, PVC does not pose the human health risks that are associated with the lifecycle of a virgin product, i.e. that the health impacts of recycled PVC are equivalent to the comparable health impacts of PVC alternatives. Should this be substantially documented and confirmed by a legitimate third party, the GBCA will consider the modification of this credit to exclude eligible recycled PVC.

Category: Professional Services Code: 027

Mat 7 Recognise that large cables are not available with 100% PVC insulation.

The following has been clarified for Mat-7 'PVC Minimisation':

- The calculations are to be based on the cost of the PVC only (not on the cost of the entire product if it consists of more than PVC);
- PVC insulation is most often a separate cost item so its cost is simple to calculate;
- PVC content of PVC pipes and conduits is expected to be 95-100%;
- PVC sheathing for copper wires/cables and PVC backing of commercial-grade carpet tile are expected to contribute 10% to the item's cost.
- Whenever the above defaults are not used, projects must provide justification for the values they do use.

For full details of revisions to Mat-7 'PVC Minimisation', please refer to *Green Star – Office v3 Summary of Changes*.

Mat-11 'Sustainable Timber'

N.B. One of the feedback submissions on this credit was 16 pages long with extensive descriptions of Australian regulatory mechanisms. Therefore, the GBCA is responding only to comments where the Forestry Stewardship Council (FSC) scheme and Australian Forest Certification Scheme (AFCS) are being compared directly and to important points of agreement and disagreement on stated issues.

Category: Product Supplier Code: 001

To my knowledge it is not possible to purchase timber from these (FSC) forests as there is not a saw mill in Australia that has implemented a chain of custody from the plantation to the sawmill, to the wholesaler. FSC timber currently available is mostly used for its inherent beauty as show wood in furniture and interiors and should not be hidden by upholstery.

One of the goals of Green Star is market transformation, in the past year there has been a dramatic increase in FSC chain of custody holders in Australia. Please see www.fsc.info.org for a complete list of FSC chain of custody holders.

Category: Professional Services Code: 015

We have been told that the Green Building Code (sic) doesn't require Chain of Custody. How then is it possible to ensure that the timber is FSC?

The Mat-8 'Sustainable Timber' credit does require the Chain of custody (COC) certificates to demonstrate compliance with the Credit Criteria.

The following has been clarified:

- The specification must list the compliance criteria; a general clause that stipulates compliance with this credit, even if the compliance criterion is included as an Appendix, will not be acceptable for demonstrating compliance;
- The last 'hands' to supply the FSC-certified piece of timber (e.g. reseller of a finished product) must have a Chain of Custody Certificate; the project itself does not need this Certificate; and
- A current list of holders of the FSC chain-of-custody and management Certificate can be found on the following website: <http://www.fsc-info.org/>.

For full details of revisions to Mat-8 'Sustainable Timber', please refer to *Green Star – Office v3 Summary of Changes*.

Our veneer makes up less than 2% of the total board product. Timber is a renewable resource. The point of veneer is to conserve the timber resource.

Noted.

We also sell . . . reconstructed timber veneer. This timber has SGS (Societe Generale de Surveillance). We ask that the Green Building Code expands its terms to recognise this certification as to our knowledge, this is one of the most sustainable methods of producing timber with minimum impact on the environment.

You are welcome to submit details on SGS certification to the GBCA for consideration as a recognised Standard. As with requests for all third party certification, please submit the following information:

1. A description of the certification body and of the certification system it administers;
2. Evidence of the independent governance of the certification body;

3. A description of the organisational structure of the certification body;
4. A description of the environmental performance criteria within the certification system, and the mechanism for criteria development; and
5. A description of the verification methods.

Category: Government Code: 017

The use of FSC timber for construction and office fit-out is therefore almost exclusively dependent on procuring imported product, potentially from dubious sources. Although we are not suggesting that FSC knowingly certifies illegal timber product, we do question its ability to guarantee the sustainability of FSC certified timber sourced from countries with poor SFM practices, inadequate regulatory controls and limited resources (e.g. Papua New Guinea, Solomon Islands and Laos).

Category: Industry Association Code: 016

The US Green Building Council now recognises the need for a range of robust certification schemes to identify legal wood, not simply an exclusive approach to FSC.

In the Stakeholder Submission Feedback it was noted that "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". After investigating the suggested supplier it came to the attention of the Department that this joinery imports FSC certified timber from Papua New Guinea a country considered by many to engage in illegal logging activities.

... The dubious nature of logging in Papua New Guinea was highlighted in a recent article written by the Executive Director of the Australian Conservation Foundation, . . . and the Chief Executive of Greenpeace Australia Pacific. . . and published in The Australian newspaper on 14 October. They wrote that "A recent World Bank report estimates up to 70 per cent of logging in PNG is illegal. We believe it could be as much as 90 per cent. Independent reports and studies by the UK Timber Trade Federation, PNG's Ombudsman Commission, the PNG Department of Labour and numerous non-government organisations have raised serious questions about the legality and sustainability of large-scale logging in PNG."

Thank you for bringing this article to the attention of the GBCA. The GBCA notes that illegal timber logging is an important issue.

The paper by Australian Conservation Foundation (ACF) / Centre for Environmental Law and Community Rights (CELCOR) entitled "Bulldozing Progress: Human rights abuses and corruption in Papua New Guinea's large scale logging industry," (http://www.acfonline.org.au/uploads/res_ACF-CELCOR_full.pdf) concludes with numerous recommendations, including:

The corporate sector more broadly also has an important role to play in ensuring the just and sustainable use of forestry resources. Downstream processors, manufacturers, wholesalers and retail traders of forestry products should all insist on a reliable certification scheme, such as the Forest Stewardship Council (FSC) scheme for their suppliers. Banks and investors should similarly require FSC certification as a condition of doing business with both forestry companies themselves and the companies involved in downstream processing, manufacturing, and trade.

Similarly, the Greenpeace website has the following statement on how to address the issue of illegal timber

(<http://www.greenpeace.org/australia/issues/deforestation/solutions/corporate>):

The Forest Stewardship Council (FSC) is the only internationally recognised forest certification scheme that can give rigorous and credible assurance that timber products come from legal and responsibly managed forests. Greenpeace supports

the FSC, as do many indigenous people's organisations and progressive timber companies. When you buy a timber product carrying the FSC logo, you can be sure it comes from an environmentally appropriate and socially beneficial source.

The GBCA supports Government and the timber industry in endorsing the implementation of the FSC scheme in developing nations as a means of ensuring the legality of the timber coming from developing countries and provide an unparalleled market incentive to sustainability and legally harvested timber.

Category: Industry Association Code: 016

The requirements effectively mean that virtually no major new project, and few refurbishments, will be able to claim the current Mat-8 (ver2) credit points, as in reality no major Australian project could currently be totally built or fitted out using only recycled or certified timber of any persuasion. The volume of recycled or certified timber simply does not exist in Australia at present.

To date, 13 out of 25 Green Star certified projects have been awarded the Mat-8 'Sustainable Timber' credit. This indicates that projects can achieve the credit as it is currently written and that it is not necessary for a project to achieve this credit in order to receive a Green Star certified rating.

Category: Government Code: 017

... It is the emphatic view of XXXX that Australians should be able to source locally produced native timber and not be dependent on sourcing imported product to satisfy GBCA's requirements.

Category: Industry Association Code: 016

By specifying 'FSC only' timber and not recognising AFS certified timber, Green Star also effectively excludes the use of all Australian native Forest timber (as FSC currently does not certify any native forests in Australia) and a large proportion of Australian plantation timber.

Category: Product supplier Code: 025

It might be a good idea to explain why FSC certification is required when no native Australian timber has FSC certification.

Green Star is a tool for market transformation. Following the uptake of Green Star in the property industry a number of materials, technologies, and practices have become standard practice.

Category: Industry Association Code: 016

Recommend that the current version of the Mat-8 Sustainable timber specification be reviewed to assess whether it is truly 'reasonable' in allowing designers and industry to meet its intent. Of practical importance is the current requirement that 'all timber' needs to meet the credit criteria and the introduction of a '% inclusion' approach.

Based on stakeholder feedback, Mat-8 is being revised to a 95% benchmark from a 100% benchmark in order to encourage projects that might not otherwise be able to achieve this credit.

Category: Industry Association Code: 016

Recommend: the Australian Forest Certification Scheme (AFCS) should also be recognised in the Mat-8 Sustainable Timber specification as a method of identifying certified environmentally responsible forest management practice.

Category: Product supplier Code: 026

Explain why FSC certification is required ...and explain the reasons against accepting Australian Standards.

The GBCA recognises the Forest Stewardship Council (FSC) as an independent and credible third-party certification scheme for sustainable timber and currently does not recognise the Australian Forest Certification Scheme (AFCS) for the following reasons:

The role of stakeholders

The key strength of FSC and a criticism of AFCS has been the way stakeholder participation is addressed.

The FSC constitution requires equal representation and decision-making power from economic, social, and environmental interests. The decision-making body of FSC includes non-governmental organisations (NGOs), indigenous peoples associations, academic and research institutions, certifications bodies, industry and trade associations, consumer organisations, retailers, wholesalers, and consultancies.

AFS is mostly driven by the timber industry and government. All NGO stakeholders representing environmental interests, including WWF and the Australian Conservation Foundation, resigned from the AFCS standards development process and indicated their concerns that crucial forest management issues would not be addressed and their involvement would have no impact on the outcome.

Conversion of native forest to plantation

Since the early 1990s, national public policy has been clear with respect to vegetation clearing as the single greatest threat to biodiversity in Australia. This is reflected in the National Strategy for Ecologically Sustainable Development (1992), the National Forest Statement (1992), the Endangered Species Conservation Act (1992), and the National Principles for Plantation Establishment (1995), among others.

FSC prohibits the clearing and conversion of native forest for plantation, except under very specific conditions.

The AFCS permits the removal of high conservation value forest, including old growth forest, for conversion to plantation. The AFCS does not take into account the cumulative impact of land clearing and conversion to plantation.

High-conservation value forests and the protection of species

Stakeholders have raised concerns that some forest areas certified for harvest under AFCS are actually of high conservation value, with harvesting in these areas having negative impact on the ecological value of the area.

This concern was highlighted in the *Brown vs Forestry Tasmania* ruling, December 2006. The Federal Court ruling stated that some of Forestry Tasmania's forestry operations are not ensuring the protection of threatened species and contravene Tasmania's Regional Forestry Agreement (RFA), the Australian Environmental Protection and Biodiversity Conservation Act (EPBC Act) 1999 and international treaties. All of Forestry Tasmania's forests are certified under AFCS, including the forest covered by the Brown case.

Use of toxic chemicals and poisoning of animals

FSC policy mandates the avoidance of highly hazardous chemicals identified under various international protocols (except under specific circumstances requiring stakeholder agreement - known as a "derogation"). For example, sodium fluoroacetate - also known as 1080 - is listed as an "Extremely Hazardous" pesticide by the World Health Organisation (Table 1, Class 1a) and is banned from use by FSC.

It is understood that 1080 is in widespread use in AFCS forests in Tasmania to kill native forest animals after the area has been cleared. The only stipulation in AFCS regarding chemical use is that forest managers will "reduce reliance on chemicals" as long as forest outcomes are still achieved.

Use of genetically modified organisms (GMOs)

The use of GMOs is banned by FSC and is allowed by AFCS.

Category: Government Code: 017

The EPBC Act provides the legislative framework for Australia's national environmental impact assessment regime. The essence of the EPBC Act regime is that a person must not take an action except in accordance with an approval from the Australian Government Environment Minister in that action is likely to have a significant impact on a matter of national environmental significance. Likely impacts on the ecological sustainability of Australia's forest estate, encompass impacts on matters of national environmental significance, including threatened species and ecological communities, migratory species, wetlands of international importance, world heritage properties and national heritage places.

...Regional Forestry Agreement (RFA) forestry operations undertaken in accordance with an RFA do not require assessment and approval under EPBC Act, because of the comprehensive assessment of environmental issues that have occurred during the CRA process.

...The combined provisions of the EPBC Act together with the protections afforded by the RFA Act mean that Australia has a legally enforceable commitment to ensure our natural resources, including forest, are utilised and managed in a sustainable manner.

See the outcomes of the Brown Vs Forestry Tasmania case described above.

Category: Government Code: 017

The nine criteria under the AFS are similar to the FSC principles, and have considerable linkages with these principles. The key differences are that AFS does not include a separate criteria on plantations (FSC principle 10), which is considered redundant by many, while AFS also explicitly recognises the role of forests in global carbon cycles and greenhouse emissions from forest management activities (Criterion 7), a matter on which FSC is silent.

The GBCA recognises that there are a number of similarities. However, it is considered that the FSC standard is more robust, -particularly with respect to FSC Principle 6 which addresses the key issues of pesticides, genetically modified organisms, and the conversion of forests to plantation.

Category: Government Code: 017

The AFS Technical Reference Committee (AFS TRC) is a broad-based national stakeholder group. The AFS TRC provides for participation of a wide range of interests and expertise at a national level that are likely to be affected by or use an Australian Standard. It has been constituted to ensure a balance of views at each stage of the development and review process of the AFS.

... The broad categories of interests that are represented on the AFS TRC include:

- forest owners and processors;*
- independent professional and scientific bodies;*
- community and consumer interests; and*
- regulatory or controlling bodies.*

...It should be noted that these categories represent a range of environmental, economic and social interests in sustainable forest management in Australia.

Category: Government Code: 017

...As noted previously both the WWF and Mr Cadman were members of the AFS TRC, and had input into the development of the AFS, until they both withdrew in early 2002. The withdrawal of WWF and Mr Cadman is believed to have been a strategic decision, enabling them to concentrate on developing a national FSC standard...

The GBCA notes that among the parties listed as represented on the AFCS Technical Reference Committee, none are from not-for-profit environmental organisations.

According to the open letter published 28 October 2005 by the Australian Conservation Foundation, Friends of the Earth, Greenpeace Australia, and the Wilderness Society, all environmental organisations withdrew from the AFCS standards setting process in 2002 over concerns about the lack of meaningful participation in this process

As noted in the response above, the GBCA considers the lack of stakeholder engagement from environmental interests in the AFCS scheme to be a significant issue.

Category: Government Code: 017

The AFS compared with FSC is a relatively new standard with new requirements on conversion expected to be applicable from the time when AFS is recognised as a full Australian Standard.

...The conversion of native vegetation has been a difficult issue for the AFS TRC and one which is expected to be resolved shortly. When the full AFS comes into effect it is expected that the conversion of native vegetation will no longer be permitted, however, there may be a transitional period to enable forest managers to comply with the revised requirement.

The GBCA looks forward to reviewing this revised standard.

Category: Government Code: 017

FSC's stance on the conversion of native vegetation is seen by a number of Indigenous groups as detrimental to the self-determination and socio-economic development of indigenous communities. The AFS unlike FSC recognises that it should be encouraging such opportunities.

FSC Principle 3 enshrines the rights of indigenous people to, "own, use and manage their lands, territories, and resources" and further clarifies under article 3.2 that, "Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples."

Category: Government Code: 017

As you may be aware FSC, with the involvement of WWF and Mr Cadman, attempted to commence development of a national standard in 2002, however, the process was rejected by key stakeholders as it failed to consider the harvesting of native timber... Without providing for broad based representation, it is difficult to establish how the FSC process encompasses the economic, social, and environmental pillars of SFM. It was for this reason that the Construction, Forestry, Mining and Energy Union and Timber Communities Australia withdrew from the process.

It is the GBCA's understanding that since 2005, key stakeholders are all in agreement regarding the applicability of FSC to native forests.

It should be noted that as of March 2007, Jill Lewis, National Director of Timber Communities Australia, became a Board Member of the FSC Social Chamber.

Category: Government Code: 017

The Australian Government is taking practical measures to try and reduce reliance on chemicals such as sodium monofluoroacetate (1080), as evidenced by the \$4 million alternatives to 1080 programme administered under the Tasmanian Community Forest Agreement.

The GBCA welcomes the Australian government's initiative to find alternatives to this extremely hazardous chemical.

Category: Government Code: 017

...Many managers of FSC certified forests in Australia hold derogations from the FSC enabling them to use chemicals and pesticides that would not be applicable under criterion 6.6. Such derogations, which can be for a five year period commencing 2007, are not available under the AFS with managers having to comply with all requirements in the standard which seeks an outcome to reduce reliance on chemicals.

As noted above, FSC Principle 6 mandates the avoidance of highly hazardous chemicals identified under various international protocols. Short-term exceptions, known as derogations, are made to assist forest managers in the transition to non-toxic pest management practices. In contrast, the AFCS Criterion 4.5.5 merely stipulates that forest managers reduce reliance on chemicals but does not otherwise put restrictions on them.

Category: Government Code: 017

Many scientists in fact consider that GMOs potentially offer a significant range of environmental and economic benefits to the forest industry, and that the suggested impacts of GMOs are greatly overstated, and generally by those who have little understanding of the issue.

Noted.

Category: Government Code: 017

The GBCA in its Stakeholder Feedback Submission stated on several occasions that it would rely on the World Bank/WWF review of forest certification schemes to compare the merits of AFS relative to FSC. The Department has no knowledge of any such review being undertaken, although the guiding document Forest Certification Assessment Guide has been available since July 2006.

The GBCA contacted WWF regarding the timing of the study comparing AFCS to FSC using the Forest Certification Assessment Guide (FCAG) and received the following response:

“To date the bulk of the forests certified under FSC are plantations and the forests certified under AFS are native/natural forest. This poses a problem in comparing like with like. Therefore WWF-Australia have decided to postpone an assessment using the FCAG until such time as a native/natural forest is certified under FSC. There are currently a number of operations that are on the path to FSC certification and hence we do not envisage a long delay.

WWF-Australia stand by its analysis of the fundamental differences between AFS and FSC and why we continue to state that FSC is the most credible forest certification scheme currently available - as we have documented in the past:

- AFS's certification of the practice of converting native forest to plantation and other land uses; FSC's non-certification of conversion
- FSC's commitment to the minimisation of chemical use
- FSC's engagement and consensus building approach between all stakeholders.”

Category: Government Code: 017

XXXX is deeply concerned that GBCA would elect to assess the merits of the AFS based on a document prepared by the World Bank / WWF Alliance...The former continues to fund the FSC, while WWF was responsible for establishing and initiating the FSC and continues to push FSC as the only credible forest certification scheme. It is not clear to the Department how GBCA could provide credence to a proposed process that lacks transparency, credibility and is evidently driven by two entities that have an interest in protecting FSC from competition... In the absence of the promised review or even a schedule, the Department supports the approach put forth by AFS Ltd and request that GBCA undertake a review of certification schemes using the Comparative Matrix of Forest Certification Schemes – see <http://www.forestrycertification.info/>.

The World Bank is an international finance institution with membership from 185 countries and 1,800 projects around the world.

Like the Australian Forestry Standard Limited, FSC is a member-based organisation charging dues for membership. WWF is a member of FSC and does provide support through membership fees.

The “Comparative Matrix of Forest Certification Schemes” referenced in this feedback is funded entirely by the Confederation of European Paper Industries and allows representatives of certification schemes to enter the data on their schemes themselves. This then raises questions about the funding source and method of data capture, and the robustness of the analysis provided by this website.

Category: Government Code: 017

Timber carrying the FSC logo only has to comprise 10% FSC certified product. It is unclear how much of this product may comprise illegally sourced tropical timber, the very resource that FSC was set up to protect. To carry the AFS logo at least 70 per cent of the product must come from AFS certified forests.

FSC has three labels: FSC Pure, FSC Recycled, and FSC Mixed. Under the “FSC Mixed” label standard, a percentage of the timber is allowed to be from “Controlled Wood”. Controlled Wood content is not open to all timber sources and is subject of FSC Controlled Wood standards. Per the “FSC Standard for Non-FSC Controlled Wood” ([http://www.fsc.org/keepout/en/content_areas/77/134/files/FSC STD 40 005 V1 0 EN Controlled wood.pdf](http://www.fsc.org/keepout/en/content_areas/77/134/files/FSC_STD_40_005_V1_0_EN_Controlled_wood.pdf)), Controlled Wood must:

- not violate traditional & civil rights,
- not come from high conservation value forest,
- not come from genetically modified trees,
- not be illegally harvested, and
- not be from areas that have been converted from natural forest to plantations or other non-forest uses.

Given these strict parameters (e.g., conversion to plantation), it is possible that timber with an AFCS certification would not meet the criteria in the FSC standard for Controlled Wood.

Land Use & Ecology

Eco-2 'Building Layout Efficiency'

Category: Professional Services Code: 019

...believe that the Primary Circulation route definition . . . should have the addition 'OR an equivalent way of meeting fire compliance supported by a fire engineer'.

Alternatively, a ratio of workstations to tenancy floor area, as per lease agreement, should be made with (excluding all complex calculations).

*...believe the definition should be $BLE_{tenancy} = NOA / (GIA - CORE)$. . .Due to this the layout efficiency should shift from $BLE=85\%$ to $BLE_{tenancy}=90\%$ to account for the difference.
... this change should be made because it is an item which cannot be modified in an existing building.*

The rating tool has been revised as follows:

The credit has been reduced to one point (from two), and modified to allow an alternative mode of compliance in the form of the NLA/GFA ratio, as widely used by the industry.

The Credit Criteria has been adjusted to allow tenancy fitouts that occupy the ground floor or cover numerous floors to calculate BLE as a total figure over the entire building.

This credit is not applicable for refurbishment projects. Based on analysis of several projects, the Credit Criteria has been revised to reward implementation over 75%, not 85% of the NLA.

The Aim of the credit is "To encourage and recognise designs that facilitate efficient use of built space, thus minimising the need for additional development."

The Credit Criteria reads as follows:

One point is awarded where it is demonstrated that the Building Layout Efficiency (defined as the ratio of Net Occupiable Area to the Gross Internal Area of the building), is at least 0.75.

OR

*Where the ratio of total building NLA to total building GFA is at least 85%.
For refurbished buildings, this credit is 'Not Applicable'.*

Eco-5 'Shell & Core or Integrated Fitout'

Category: Professional Services Code: 027

Allow fitout to be carried out by a different contractor.

The credit never stipulated that the fitout must be carried out by the same contractor; this has been clarified.

Emissions

Emi-1 'Refrigerant ODP'

Category: Professional Services Code: 027

Emi-1 Change zero ODP to 0.020 ODP. This allows use of R123 which has an ODP of 50 times lower than R11 and a GWP 10 times lower than R134a. This credit unnecessarily penalizes R123 which has better total ODP, GWP and energy performance than R134a.

Category: Product Supplier Code: 038

The intent of this credit is to promote the use of low ODP refrigerants. Change the ODP criteria from zero to a maximum of 0.02 to allow HCFC-1234 to be eligible for the Emi-1 credit, or alternatively...

The GBCA is not seeking to promote use of the less damaging O₃ depleting substances, but rather to eliminate their use altogether, in favour of those with no O₃ depleting potential, or in the direction of no refrigerants altogether.

Category: Product Supplier Code: 038

Adopt a refrigerant life cycle evaluation like in LEED to assess each application on its merits in ODP, WP, charge size, equipment type and leakage rates. This will make the evaluation process more complicated and will require a built-in tool in the Green Star assessment tool due to the many variables involved. Furthermore, agreement from the industry on the leakage rates, refrigerant ODP and GWP values are required to form the basis of the evaluation process. This will also create some duplication with the next credit Emi-2 which is solely directed to natural refrigerants.

Green Star credits isolate environmental concerns and set performance targets for each. This enables Green Star to send a clear message to the market with regard to performance standards. It is the prerogative of the design team to find a solution that best addresses the majority of issues, and, thus, harnesses the majority of points.

In addition, Green Star should not be used as a sole guide for selecting or sizing of refrigerant equipment. Therefore, deleting the existing four credits on refrigerants and adopting the proposed equation is not considered appropriate at this time.

Innovation

Category: Product Supplier Code: 004

Innovation points: The GBCA, in its latest stakeholder feedback response in February 2006, stated that one innovation point can be earned if 80% of the textiles procured for chairs, partitions and panels are Certified by the Good Environmental Choice Label. Textiles third party certified through GECA are not necessarily a good environmental outcome, for the reasons outlined in points 1 & 2, and XXXX would recommend that the GBCA does not award innovation points on this basis.

The innovation category never guarantees that any particular initiative would receive Innovation points. The reference was purely to illustrate that a project can qualify for Innovation if it achieves substantial environmental benefit outside of the scope of Green Star.

The entire Innovation category has been revised; please refer to *Green Star – Office Interiors v1.2 Summary of Changes*.