Stakeholder Feedback Report 2005/6
Green Star – Office Design v2 and Green Star – Office As Built v2

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 GBCA'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 Design v2, Green Star – Office As Built v2

General comment:

Category: Professional Services Code: 031

The Green Star rating tool has created confusion in the public sector and …is being abused. We suggest that 'demonstrate' and actual implementation are two separate things…The Green Star rating… can easily be abused between that planning stage and completion stage.

Verification of actual delivery is the purpose of the 'As Built' tool.

Green Star - Office As Built validates the environmental initiatives of the construction and procurement phase of a Class 5 office building and can also validate that environmental initiatives proposed in the design phase have been implemented by the building contractor.

Green Star – Office As Built assesses the same design initiatives as Green Star – 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.

Management

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 been 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 v3 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 Air Change Effectiveness

Category: Professional Services Code: 031
IEQ-3 encourages the use of CO2 sensors (positive) but also provides a point for (encouraging) the use of air conditioning with 100% outside air which again increases the cooling and heating capacity of the air conditioning plant , increasing running costs and increasing greenhouse 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 or 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: 027
It is expensive to perform the required modelling hence many projects ignore this credit. Suggest a deemed to satisfy approach.

Agreed; the GBCA is continually looking for means to decrease the costs associated with documentation of the Green Star credits. However, as yet the GBCA has not been presented with a robust deemed-to-satisfy approach in this particular credit. Any suggestions from the industry are welcomed.

IEQ-3 'Carbon Dioxide Monitoring and Control'

Category: Professional Services Code: 027
CO_2ppm 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 v3 Summary of Changes.*

IEQ-4 '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-4 'Daylight', please refer to *Green Star – Office v3 Summary of Changes.*

IEQ-7 'Electric Lighting Levels'

Category: Professional Services Code: 027
IEQ 7
Why 900mm rather than desk height of 720mm and in any case why different to IEQ 4 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 v3 Summary of Changes.*

IEQ-10 'Individual Comfort Control'

Category: Professional Services Code: 027
This credit is of questionable value. In any case should be reduced to 1 point.

Noted.

IEQ-13 'Volatile Organic Compounds'

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 to address "Timber varnishes, stains and finishes'. The maximum TVOC content has been set at 40g/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; it is the GBCA understanding that this information will be submitted for GBCA review in March 2007.

IEQ-14 '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 Fiberboards. 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 v3 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 v3 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 v3 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 v3 Summary of Changes.*

IEQ-16 'Tenant Exhaust Riser'

Category: Professional Services Code: 031
IEQ-16 refers to AS1668.2-2002 which is not compliant with the BCA.

Assuming reference to Green Star - Office Design or Green Star - Office As-Built, where IEQ-16 is 'Tenant Exhaust Riser.'

Green Star references two version of AS1668.2: 1991 and 2002. While the 2002 version is more stringent as it has more comprehensive and diverse details, it has not been accepted by the Australian Building Codes Board. To comply with the BCA, compliance with AS1668.2-1991 must be assured. However, there are many good components in the 2002 version and the GBCA will continue to pursue uptake of these.

For full details of revisions to IEQ-16 'Mould Prevention', please refer to *Green Star – Office v3 Summary of Changes.*

Energy

Ene-1 'Energy'

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 improvement'

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 planing allowance** if only a minimum is stipulated; and 2 points = at least 50% less than the maximum local planing allowances, **or no more than the minimum local planning allowances** if only a minimum is stipulated."

Tra-2 'Small Parking Spaces'

Category: Professional Services Code: 031
Tra-2 logic of reducing the size of car park bays to promote use of small cars appears flawed. The requirement for the provision of smaller car parking bays would defy the minimum requirements of the BCA…It is always an effort to get the minimum number of car parking bays required of the BCA or Local Government to fit onto the project site so bays are always at or nearly at the minimum size allowed under the Code.

Green Star focuses on the top 25% of the market, consideration of current practice shows that the minimum requirements are commonly exceeded; this credit rewards projects that do not exceed the stipulated minimum. In doing so it aims to facilitate greater uptake of alternative transportation.

Credit Criteria specifies a percentage of parking spaces to be sized and labelled for small cars and or mopeds / motorbikes, and a smaller percentage for smaller cars only. Reliance cannot be made on the potential challenge the site size may present in fitting in the minimum car parking spaces within the development as it cannot be guaranteed that the site will be space limited.

Category: Professional Services Code: 031
Tra-3 – the BCA and R-codes already identifies (sic) the requirement for bicycle / motorbike parking spaces.

The reference to Tra-3 is taken to be a typo, as the comment refers to Tra-2 'Small Parking Spaces.'

Consideration of current practice shows that the minimum requirements are commonly exceeded; this credit rewards projects that do not exceed the stipulated minimum. In doing so it aims to facilitate greater uptake of alternative transportation.

Tra-4 ‘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.

Wat-4 'Cooling Tower Water Consumption'

Category: Professional Services Code: 031

Under Wat-4...Cooling tower / water chiller is much more energy efficient…than an air cooled chiller, so why promote penalising a more energy efficient system? We suggest that the use of energy efficient plant should be of significantly higher profile and that the Green Star encourage alternative water use, water recycling, alternatives to chemical dosing and promoting effective maintenance routines to address the threat of Legionella.

Green Star addresses each issue separately. The intent of this credit is to ensure that potable water consumption for heat rejection purposes is minimised. 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.

Materials

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.

Mat-1 'Recycling Waste Storage'

Category: Professional Services Code: 030

'I appreciate the intent of the credit to provide storage space 'built in' the building, un-affected by tenant behaviour or owner lease agreements; however, can you please explain the intent of the 20m rule considering the following points:

- *Office workers (or occupants) are not responsible for taking rubbish to the storage point, especially if this requires the storage point to be within 20m of base of lift core and accessible by vehicle.*
- *Waste/recycling removal would normally be performed by cleaners from the office spaces to the storage area (paid for by owner/tenants)*
- *The cleaners are paid to take the waste/recycling to the vehicle collection point, whether this is within 20m or 50m of the base of the lift core. (paid by owner/tenants)*
- *The extent/efficiency of recycling or separation of recycling would not change whether the collection point is within 20m or 50 of the base of the lift core. (the same overall mass of material would still need to be wheeled out.*
- *Why enforce a 20m rule to aid cleaners when no provision/compliance is made for dedicated areas at the point of consumption and floor by floor?'*

Green Star assigns a rating to the attributes of the physical building and its services, independent of its tenants' operations or behaviour. Therefore this credits rewards projects that easily facilitate recycling rather than relying on future operational practices.

However, the Credit Criteria have been revised to better address the Aim of the Credit, as follows:

Two points are awarded where it is demonstrated that a dedicated storage area is provided for the separation and collection of recyclable office consumables and is all of the following:

- *Adequately sized (as per the area table in Additional Guidance);*
- *Allows for separate storage of paper, glass, plastics, metals and organic (compost) materials, as a minimum;*
- *Easily accessible by recycling collection vehicles; and*
- *Easily accessible by building occupants, i.e. for multi-storey buildings within 20m of the loading dock (or the exit used for recycling pick-up) or the lift core*

serving all floors OR within 3 metres of the shortest route connecting the loading dock and the lift core.

For full details of revisions to Mat-1 'Recycling Waste Storage', please refer to *Green Star – Office v3 Summary of Changes*

Mat-5 'Recycled content of concrete'

Category: Professional Services Code: 021
'You state that cost or ease of attainment do not form the basis for Green Star credits. This philosophy does not seem to be consistent throughout Green Star.
Why do you make allowances for economic constraints for this particular construction technique but not for others? Whilst we agree that various techniques need to be evaluated individually, this philosophy should be adopted consistently to other construction techniques.

From your submission, the GBCA infers that the comparison is made between pre-cast and post-tensioned concrete.

As post-tensioned concrete uses both less concrete and less steel, the GBCA recognises the environmental benefit of this technique and has developed separate criteria to reward replacement of Portland cement while recognising the specificity of such applications. Please refer to Mat-5 'Concrete' within Green Star – Office v3 for details.

Category: Professional Services Code: 021
There are 3 types of structural concrete used in buildings:
i. precast concrete (PC)
ii. Cast in situ post tensioned concrete (PT)
iii. cast in situ reinforced concrete
Each of these types of concrete is used for different purposes and all have different properties, requirements and constraints.
. . we strongly suggest that specific consideration be given to each of these types of concrete separately including PT.
In your feedback you suggest that a demonstration of reduced OPC in PT as compared to RC is sufficient.
i) this comparison would be subjective as the properties, requirements and constraints of PT and RC vary significantly to RC.
ii) This approach will not encourage the max. reductions in OPC as you are not requiring the designer to reduce further the amount of OPC in the PT as this has already been done by choosing PT alone.
iii) A comparison of PT and RC disadvantages an environmentally beneficial construction technique due to a lack of clear and simple requirements.

We believe the simplest way to achieve your intention is to stipulate OPC reductions for each of these 3 types of concrete. We also suggest that you increase the required OPC % reductions for RC:
1 credit point = 15% PC, 15% PT concrete – insitu, 30% RC – insitu
2 credit points = 30% PC, 30% PT concrete – insitu, 60% RC – insitu
This will encourage OPC reduction for all of these types of concrete and provide an equitable system that is user friendly and non-subjective.

In response to feedback and in consultation with the Concrete Institute, the rating tools have been revised to address stressed concrete and reflect industry progress. The Credit Criteria for cement replacement read as follows:

> Up to two points are also awarded where the absolute quantity of Portland cement as an average across all concrete mixes has been substantially reduced as a result of substitution with industrial waste products, as follows:
> • 1 point = 30% for in-situ concrete, 20% for pre-cast concrete and 15% for stressed concrete; and
> • 2 points = 60% for in-situ concrete, 40% for pre-cast concrete and 30% for stressed concrete;

Mat-6 'Recycled Content of Steel

Category: Professional Services Code: 021

'PT [post tensioned] floors contain about 50% less steel than RC [cast insitu reinforced concrete]… it is possible to get a point for 30% reduction of non-recycled material in an RC slab, but not for a 50% reduction in a PT slab. This assessment is clearly not based on environmental impact . . and disadvantages one construction technique over the other.'

Agreed. Green Star – Office v3 includes a dematerialisation credit, please refer to Mat-10 'Dematerialisation'. One of the options to gain points is to reduce the amount of steel, and the Credit Criteria read as follows:

> *One point is available where a substantial reduction in materials consumption can be demonstrated by achieving any two of the bulleted initiatives below*:
>
> ***Structure***
>
> - *Within projects where at least 50% is framed in structural steel, and where it is demonstrated that the building's structural requirements and integrity have been achieved using 10% less steel (by mass) than in a structure with conventional steel framing, without changing the load path to other structural components;*
> - *Within projects where at least 50% is framed in structural steel, and where it is demonstrated that the building's structural requirements and integrity have been achieved using an additional reduction of 10% (by mass) from the above (to a total of 20% reduction) from a structure with conventional steel framing, without changing the load path to other structural components.*

Category: Product supplier Code: 022

1. 'it would be a step forward if LCA methodologies were credited to support emerging best practices in eco efficient production of building materials and the design of energy efficient buildings in operation. A practical approach here would be to add a new Management credit to reward LCA application.

The principles of lifecycle analysis (LCA) lie at the core of the Materials category within Green Star. However, there has not been consistent methodology world-wide or in Australia. The GBCA is a partner in the Building Assemblies and Materials Scorecard project aimed at developing a common methodological approach for scoring the environmental performance of building assemblies over their whole lifecycle. 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

Category: Product supplier Code: 022

2. There is currently no provision for rewarding design that improves functional value with less material density. The GBCA suggests the best way to introduce a reward for smart design leading to dematerialisation of this kind...is via the innovation category

While it has been acknowledged that in order of environmental priority, 'reduce' comes before 'reuse' and 'recycling', until this year the Technical Working Groups had not been able to devise a robust reference case against which the reduction in the total amount of material used could be rewarded. Green Star – Office v3 includes a dematerialisation credit, please refer to Mat-10 'Dematerialisation'.

Mat-7 ' 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 USGCB 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 that 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 pthalates 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-8 '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: O25
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:

<u>The role of stakeholders</u>

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 mangers 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 protection s 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 monofluroacetate (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), 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 and Ecology

Eco-1 'Ecological Value of Site'

Category: Individual Code: 032
In Eco-1 the site is not allowed to be on either agricultural land or wetland. What about old growth forest?

Under the Green Star rating system (credit Eco-1 Ecological Value) developments are prohibited on either agricultural land or wetlands. However no mention is made of the clearing of native forests for urban developments.

... Current Commonwealth and State Government legislation does not protect native forests, creating serious loopholes that enable developers to raze important habitats for wildlife for new urban developments.

..It is potentially possible that under the Green Star rating system a 6 Green Star rating building may have destroyed important habitat for Australian wildlife in order to be built!

The Green Building Council of Australia acknowledges that native vegetation is of considerable ecological value depending on the quality and abundance of the particular vegetation type.

Currently, Green Star rating tools reward both the retention of native vegetation and also for increasing ecological value on site, in Eco-4 'Change of Ecological Value'. Eco-2 'Reuse of Land' also encourages and recognises projects using development sites that do not require clearing or degradation of vegetation.

Eco-1 'Ecological Value of Site' aims to recognise developments that avoid the use of sites containing areas of high ecological value. By recognising old-growth forest in Eco-1 'Ecological Value of Site' the Green Building Council of Australia can ensure that high ecological value native forest is not being removed for the construction and development of Green Star certified projects.

Based on stakeholder feedback, the Green Building Council of Australia will include the avoidance of old-growth forest, as defined by the National forest Policy Statement, in the Credit Criteria and Compliance Requirements for Eco-1 'Ecological Value of Site'.

Old-growth forest as defined by the National forest Policy Statement is forest that is ecologically mature and has been subjected to negligible unnatural disturbance such as logging, roading and clearing. The definition focuses on forest in which the upper stratum or overstorey is in the late mature to over mature growth phases. Ecological maturity is defined by the characteristics of the older growth stages.

The rating tool has been revised; for full details of revisions to Eco-1 'Ecological Value of Site,' please refer to Eco-1 in *Green Star - Office v3 Summary of Changes*.

Eco-2 'Reuse of Land'

Category: Professional Services Code: 019
Eco-2 should be considered for modification because:
-Currently the credit is interpreted with BLE=NOA/GIA where GIA includes the plantroom/building cores which are non-tenancy items. This provides a significant disadvantage to existing buildings which have large cores. Is this the aim of the credit as large cores may also be more efficient if they have say floor by floor plant rather than roof plant. Is the embodied energy of a highrise (large core) really significantly worse than a low rise as this is what the credit encourages.

Category: Professional Services Code: 027
Change to 70% built on "or pavement".

The rating tool has been revised as follows, please refer to Eco-2 'Reuse of Land' in *Green Star - Office v3 Summary of Changes*:

The definition of 'developed land' has been clarified to encourage developments on land that has limited ecological value, defined as either of the following:

- Land with any permanent structure (building or car park);
- Any impervious or semi-impervious surfaces (paved or unpaved carparks);
- Any land that has been disturbed by human influences and would not revert to its natural state/landscape if left untouched for 10 years.

This definition now excludes curtilage.
The benchmark of 75% of the site meeting this criteria remains.

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 O_3 depleting substances, but rather to eliminate their use altogether, in favour of those with no O_3 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 address 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.

Emi-2 'Refrigerant GWP'

Category: Product Supplier Code: 038
Raise the maximum GWP of the selected refrigerant from 10 to 120 such that HCFC-124, being the most benign synthetic fluorocarbon refrigerant from a global warming perspective will be eligible to earn this credit. If however the sole purpose of this credit is to award the use of natural refrigerants, the GWP criteria must remain at 10. Alternatively, create some for of a combination of Emi-1 and Emi-2 to award a total of 3 credits to the most 'benign' refrigerant; this may include all natural alternatives and possible HCFC-123.

Green Star aims to encourage uptake of natural refrigerants not lower the benchmark (by raising the maximum GWP to 120). Therefore, the Credit Criteria has been revised to reward the switch to natural refrigerants in some of the refrigeration loops, as follows:

1 point = 50% of the fluorocarbon refrigerant charge has been replaced with refrigerant(s) that have GWP of 10 or less; and
2 points = all refrigerants that have GWP of 10 of less OR no refrigerants are used.

With regard to creating a combination of Emi-1 and Emi-2, please refer to the GBCA response in Emi-1 'Refrigerant ODP'.

Emi-3 'Refrigerant Leak detection'

Category: Professional Services Code: 027
Emi 3 Change criteria for 95% by weight of refrigerant used. This allows minor packaged units not to have the unnecessary cost of refrigerant detection system.'

The rating tool has been revised as advised; please refer to Emi-3 'Refrigerant Leaks' in *Green Star - Office v3 Summary of Changes*.

Emi-4 'Refrigerant Recovery'

'While the intent of this credit is meritorious in reducing emissions of refrigerants, the criterion is geared for built up refrigeration systems which are not common in commercial buildings that use chilled water systems… X recommends that the Green Building Council of Australia amend the Emi-4 Refrigerant Recovery credit to be evaluated as follows:

> *For direct expansion split systems or chillers which have remote condensers, an automatic pump down of the refrigerant charge into a heat exchanger or storage tank must be provided to earn this credit. Packaged chillers that are hermetic or semi-hermetic operating with a low-pressure refrigerant with an off-line pressure less than atmospheric pressure and are equipped with a high efficiency purge (>99.5% efficiency) will qualify for this credit.*

The rating tool has been revised as follows:
As the environmental benefit of leak detection is directly linked to the recovery of leaked refrigerant, Emi (3) 'Refrigerant Leak Detection' and Emi (4) 'Refrigerant Recovery' has been combined. One point is available in this credit. Credit Criteria reads as follows:

> *One point is awarded where it is demonstrated that the risk of refrigerant loss to the atmosphere has been substantially reduced, as follows:*
> ***Direct Expansion Split Systems and Chillers with Remote Condensers***
> *One point is awarded where it is demonstrated that a refrigerant leak detection and recovery system is installed and meets all of the following criteria:*
> - *Equipped with an automated pump-down system;*
> - *Sized to capture 95% (by weight) of the maximum refrigerant charge;*
> - *Operates in both operation ('On') and maintenance('Off') modes; and*
> - *If triggered, refrigerant is pumped into a heat exchanger or storage tank equipped with isolation valves.*
>
> ***Hermetic or semi-hermetic packaged chillers***
> *One point is awarded where it is demonstrated that all refrigerant is within chillers that meet all of the following criteria:*
> - *Hermetic or semi-hermetic;*
> - *Operate with a low-pressure refrigerant; and*
> - *Are equipped with a high-efficiency (>99.5%) purge sized to capture 95% (by weight) of the maximum refrigerant charge.*
>
> *If there are no refrigerants used OR if all points in Emi (1) and Emi (2) are achieved, this credit is 'Not Applicable'; enter "na" in the 'No. of Points Achieved' column.*

For full details of revisions to Emi-3 'Refrigerant Leaks', please refer to *Green Star – Office v3 Summary of Changes.*

Emi-8 'Cooling towers'

Category: Professional Services Code: 031
EMI-8 awards points for systems that eliminate the risk of Legionella by deleting cooling towers. Legionella can occur in evaporative coolers, condensate tray, and filters of fan coil units, but they are not identified.

Green Star credits aim to identify environmental problems, focus on those item(s) that cause the greatest environmental problem (rather than all possible causes) and establish measurable criteria for rewarding solutions.

Cooling towers were initially addressed by this credit as the most likely source of building-related Legionnaires' disease. It has been recognised that evaporative heat rejection should be addressed as a potential source, rather than just cooling towers. In recognition of the this, the credit has been revised as follows:

a) The credit has been renamed 'Legionella';
b) The Aim of the credit has been revised to read as follows: "To encourage and recognise building systems design that eliminates the risk of Legionnaires' Disease (Legionellosis)"; and
c) One point is awarded "where it is demonstrated that there are no evaporative heat rejection systems within the project."

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

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 2006 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 v3 Summary of Changes.*