



Outcomes of Stakeholder Feedback of Green Star – Healthcare PILOT

June 2009

The Green Star – Healthcare PILOT rating tool was developed by the Green Building Council of Australia (GBCA), in conjunction with its Technical Working Group (TWG) to support sustainable planning, design and construction for high-performance healthcare and aged care facilities.

The PILOT tool and subsequent revisions of the credits were tested by a number of project teams by application to specific healthcare projects.

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

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

It was suggested that... (1)

GBCA response: Agreed, the...

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



Eligibility

It was suggested that many of the sectors within a healthcare facility are not only BCA Class 9a/9c, but are a combination of classes 9a/9c, 5, 6, and 8. Eligibility criteria which allow for a combination eligible building classes, might be more appropriate (8).

GBCA response: Agreed. The eligibility criteria have been expanded to include the following mix of GFA (measured to exclude internal car parks):

- A minimum of 80% of BCA Class 9a, 9c, 8 and 5 (BCA Classes 5 and 8 must be ancillary to the healthcare facility); and
- A minimum of 50% of BCA Class 9a or 9c.

Please refer to the Green Star – Healthcare Version 1 Technical Manual under the heading 'Eligibility' for further details.



Management

General

It was suggested that the processes for certifying under the commissioning credits is unclear. For example - whether a designated role will be required for the commissioning of a completed project (1).

GBCA response: Each of the three commissioning credits can be claimed independently. An independent commissioning agent is rewarded in Man-4 'Independent Commissioning Agent'. The Compliance Requirements are outlined in the Technical Manual, stating that the commissioning agent must be suitably qualified for the commissioning type e.g. HVAC, hydraulic, electrical and fire suppression.

It was suggested that an operational management component should be built into the tool, and that facility managers should be engaged as part of design rating process (1).

GBCA response: Green Star assigns a rating to the attributes of the physical building and its services, independent of its tenants' operations or behaviour. However, the TWG has agreed to adopt the 'Maintainability' credit from the Green Star – Education v1 rating tool to facilitate effective operational management. This credit requires that the person responsible for maintenance performs and submits a design review at both the preliminary and final design stages. This review must consider access, ongoing maintenance, and ongoing cleaning of building services and external building features.

Man-1 'Green Star Accredited Professional'

No feedback received.

Man-2 'Commissioning Clauses'

It was suggested that the importance of commissioning and maintenance of plant and equipment controls should be increased. It was further noted that the ASHRAE/CIBSE requirements are not apparent (1).

GBCA response: The GBCA acknowledges the importance of commissioning; the Man-2 'Commissioning Clauses', Man-3 'Building Tuning', and Man-4 'Independent Commissioning Agent' credits have been revised as per Green Star – Office v3. This includes the number of points for building tuning being increased to two points to reflect the importance of ongoing building tuning as a means to achieve designed building performance.

It was suggested that this credit should include monitoring and reporting functions, as these are not recognised elsewhere (1).

GBCA response: Noted. This credit has been revised to align with Green Star – Office v3. The Credit Criteria now require monitoring, reviews, and re-commissioning.

Man-3 'Building Tuning'

No feedback received.

Man-4 'Independent Commissioning Agent'

No feedback received.

Man-5 'Building Guides' (formerly 'Building Users' Guide')

It was suggested that a procurement credit to assist with 'green procurement' objectives should be included in the tool (1).

GBCA response: Agreed. The Green Star – Healthcare v1 tool has included green procurement in this credit. Sustainable procurement is also addressed in Man-13 'Sustainable Procurement Guide'.

Man-6 'Environmental Management'

No feedback received.



Man-7 'Waste Management'

It was suggested that waste disposal should be better categorised – especially in the disposal phase (1).

GBCA response: Please note that this credit relates only to demolition and construction waste. The credit already requires separation of waste into different streams, details of which can be found in the Technical Manual.

Man-9 'Building Management Systems'

It was suggested that building management systems (BMS) are commonly used in hospital projects, and therefore do not represent 'best practice' (1).

GBCA response: The GBCA Technical Working Group agreed that even though BMS's are commonly used in hospital projects they are not commonly used in medical centres. However, the intention of this credit is not only to ensure that a BMS is installed, but also to reward a BMS which has increased capabilities and functions. In addition, the credit aims to ensure proper staff training in the use of the BMS once installed, as the proper use of even a more limited BMS can offer significant energy savings.

Man-11 'Maintainability'

No feedback received.

Man-12 'Construction Indoor Air Quality Plan' (Formerly Man-8)

It was suggested that the environmental benefit provided by this credit was not clear. The question was raised as to what measurable benefit was achieved by compliance with this credit (2).

GBCA response: By recognising the reduction in indoor air quality arising from construction and/or renovation, this credit aims to improve the comfort and well being of construction workers and building occupants during the construction and pre-occupancy phases.

It was suggested that this credit is more applicable to building upgrades during which the building remains occupied, than it is to new buildings (2).

GBCA response: This credit aims to encourage and recognise the reduction in indoor air quality problems arising from construction/renovation for the comfort and well being of construction workers and building occupants. Hence the credit is relevant to new buildings as well as refurbishments.

It was suggested that the significance of the two-week duration for the flush-out period is unclear (2).

GBCA response: The requirement for a two-week flush out period has been removed from the credit, and has been replaced with a requirement for all ductwork to be clean or cleaned in accordance with the National Air Duct Cleaners Association ACR 2006 Standard prior to occupancy.

It was suggested that this credit does not clearly indicate when the two-week flush-out period must be completed. In the case of a building upgrade, it is not indicated whether this must be conducted prior to occupancy by staff or by patients (2).

GBCA response: The requirement for a two-week flush out period has been removed from the credit.

It was suggested that the wording of this credit is inadequate. The meaning of the term "flush-out" is unclear and open to interpretation (2).

GBCA response: The requirement for a two-week flush out period has been removed from the credit.

Man-13 'Sustainable Procurement Guide' (Formerly Ene-7)

It was suggested that the procurement of medical equipment is an operational issue. It was queried whether this should be included in a Design or As Built assessment. It was suggested that this credit would be more applicable to an existing building rating (2).

GBCA response: This credit (formerly Ene-7), has been moved to the management category. Recognising that medical equipment can have a significant impact on the total energy consumed by a health/aged care facility, the GBCA Technical Working Group have amended the credit for inclusion in v1 of the tool.



It was suggested that demonstrating compliance with this credit could be laborious (2).

GBCA response: Your feedback is noted. Green Star credits are established on the basis of environmental impact. The GBCA makes every effort to streamline the process of credit compliance; however it is acknowledged that the time and effort necessary to meet the requirements of different credits varies significantly.



Indoor Environment Quality

General

It was suggested that the tool does not consider access to external areas that require little or no heating or cooling, for the purposes of rest and recovery (1).

GBCA response: Access to external areas is considered in the credit IEQ-19 'Places of Respite'. The aim of this credit is to encourage and recognise the provision of outdoor places of respite that allow for a physical connection to the natural environment.

It was suggested that a procurement credit to assist with 'green procurement' objectives should be included in the tool (1).

GBCA response: Agreed. The Green Star – Healthcare v1 tool has included green procurement in the credits Man-5 'Building Guides' and Man-13 'Sustainable Procurement Guide'.

It was suggested that the Occupied Functional Area (OFA) should include utility rooms, which can be technically occupied if they are used by a range of people over sufficient time periods (1).

GBCA response: Whilst it is acknowledged that utility rooms are sometimes used frequently, they are not intended to be more than intermittently occupied. The definition of OFA has been amended in version 1 of the Green Star – Healthcare rating tool to include a stipulation that one hour of continuous occupation is required, rather than a total occupancy of one hour per 24-hour period.

It was suggested that for the purposes of defining the Occupied Functional Area (OFA), the period of 1 hour is not sufficient to qualify as an area which is permanently occupied (1).

GBCA response: The definition of OFA has been amended in version 1 of the Green Star – Healthcare rating tool to include a stipulation that one hour of continuous occupation is required, rather than a total occupancy of one hour per 24-hour period.

It was suggested that the tool would benefit from further work on the identification of the scale of areas under consideration - the larger the areas under a zone or control, the less well regarded from an environmental assessment view (1).

GBCA response: The GBCA acknowledges the environmental benefits of zoning when correctly applied. However, as no suggestion was made as to which areas might benefit from further work on zoning, or how zoning might better be applied, no changes have been made.

IEQ-1 'Ventilation Rates'

It was suggested that because AS 1668.2-1991 requires outside air to be of a specified quality, the requirement to additionally provide outside air of a 'high' quality is superfluous (2).

GBCA response: Agreed. The credit has been amended accordingly.

It was suggested that in relation to a building using mixed-mode ventilation, the credit could be improved by requiring compliance with either AS 1668.2-1991, or AS 1668.2-2002, rather than both (2).

GBCA response: The tool references both versions of this standard; AS 1668.2-1991 and AS 1668.2-2002. This is necessary because there is no reference to naturally ventilated buildings within the 1991 version. The 2002 version is more stringent in its requirements, and it has more comprehensive and diverse details. To date however, the 2002 version of the standard has not been accepted by the Australian Building Codes Board and adopted into the BCA. 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.

It was suggested that the number of points available for this credit should be increased due to the high level of potential benefit to health, well being, and recovery rates (1).

GBCA response: Agreed. The number of points available under this credit has been increased from three to four. Please refer to the credit criteria for details of the change.



IEQ-2 'Air Change Effectiveness'

No feedback received.

IEQ-3 'Carbon Dioxide Monitoring and Control and VOC Monitoring'

No feedback received.

IEQ-4 'Daylight'

It was suggested that this credit should apply to patient recovery rooms and staff areas (e.g. offices, nurses' rooms/stations etc.), and should exclude waiting rooms, cafeterias, atria etc, where there is not a true benefit for this credit (1).

GBCA response: The benefits to health and well being provided by natural light apply to all building occupants. Natural light is not only beneficial to patients; there is a growing body of evidence which shows that it plays a role in reducing the stress levels, and improving the concentration levels, of all building occupants. The GBCA has excluded rooms that, for functional reasons, require the exclusion of sunlight from the definition of Occupied Functional Area (OFA) for this credit. Whilst acknowledging that waiting rooms and cafeterias may have more transient occupants than some other areas, the credit allows for the fact that the designated use of a particular room may change, converting a formerly more transient area to a permanently/semi-permanently occupied one.

With regard to atria, these are only required to be included in this credit if they form part of the OFA. The definition of OFA has been amended in version 1 of the Green Star – Healthcare rating tool, to include a stipulation that one hour of continuous occupation is required, rather than a total occupancy of one hour per 24-hour period.

It was suggested that the tool should reward projects that provide a higher level of daylight, particularly in patient areas, because there is a large amount of evidence showing strong links between good levels of daylighting and improved patient outcomes (9).

GBCA response: Agreed. The 'Daylight' credit has been amended to award points where daylight factors of 3% in bedded patient areas, and 2.5% in other areas, are achieved.

It was suggested that as patients often spend 24 hours a day, seven days a week in a hospital (as opposed to the average office worker at only five days a week for nine hours), the case for providing daylighting to them to the greatest extent possible is even more compelling than it is for office workers (9).

GBCA response: Agreed. The 'Daylight' credit has been amended to award points where daylight factors of 3% in bedded patient areas, and 2.5% in other areas, are achieved.

It was suggested that it is preferable that as much space as possible - where there are not specific clinical reasons for excluding daylighting - would benefit from having daylighting provided and as such that there should be a mechanism within the Green Star tool that provides an incentive to provide daylighting to areas such as corridors which at present are excluded from the definition of OFA for this credit (9).

GBCA response: Agreed. The definition of OFA for the purposes of this credit has been amended and now includes corridors and other transitional spaces. Additionally, the general definition of OFA has been expanded to include all areas that are occupied for one continuous hour in a 24-hour period, regardless of whether or not that occupation is by a single person or a series of people.

IEQ-5 'Thermal Comfort'

It was suggested that temperature should be based on "design flexibility", and should be managed in accordance with health services requirements and user satisfaction (1).

GBCA response: It is agreed that certain areas/rooms within a healthcare facility must be maintained at lower temperatures for the purposes of making them more sterile. This credit has been amended to include a stipulation that where health services regulations/codes dictate the temperature of a particular area, those requirements shall take precedence over the Green Star credit criteria. Additionally, please note that the requirements of this credit only relate to the OFA, and the definition of OFA has been amended in version 1 of the Green Star – Healthcare rating tool, to include a stipulation that one hour of continuous occupation is required, rather than a total occupancy of one hour per 24-hour period.



IEQ-6 'Hazardous Materials'

No feedback received.

IEQ-7 'Internal Noise Levels'

It was suggested that internal noise levels within healthcare facilities are typically more critical than for offices. It was suggested that the noise levels required to achieve this credit be lowered (5).

GBCA response: Table 1 of AS/NZS:2107-2000 addresses design sound levels for different space types within a healthcare facility. The definition of "satisfactory design sound level" contained within the standard is "the level of noise that has been found to be acceptable by most people for the environment in question and also to be not intrusive." Generally, the design sound levels required by the standard for healthcare facilities are similar to those required for office buildings, however lower levels are required for wards, where the standard requires the same levels as those stipulated for private offices and board rooms.

IEQ-8 'Volatile Organic Compounds'

No feedback received.

IEQ-9 'Formaldehyde Minimisation'

It was suggested that MDF with an E1 rating is standard practice now (1).

GBCA response: Feedback noted. Whilst the GBCA has observed that E1 MDF is becoming more standard industry practice, consistent supply of E0 MDF board is only available from a limited number of manufacturers. Additionally, this credit covers all engineered wood products used on the project some of which (e.g. flooring products) are quite difficult to achieve at an E0 level. No change to this credit has been made at this stage. This issue will be considered in the ongoing review of the credits for future versions of the Green Star suite of tools.

IEQ-10 'Mould Prevention'

No feedback received.

IEQ-11 'Daylight Glare Control'

It was suggested that motorised blinds are not suitable for use in healthcare facilities as they may cause disturbance to patients (1).

GBCA response: Careful selection of the type of motorised blinds to be installed should ensure minimal disturbance to patients. Motorised blinds are available from a number of different manufacturers and some produce more noise than others. Alternative methods of credit compliance are to employ fixed shading devices and/or manually operated blinds, rather than motorised blinds.

IEQ-12 'High Frequency Ballasts'

No feedback received.

IEQ-13 'Electric Lighting Levels'

It was suggested that lighting should be separated further to reflect the requirements of different use areas e.g. theatres and procedure rooms have different demands to patient accommodation, general administration areas etc. (1).

GBCA response: The credit requires adherence to Table F1 of AS/NZS 1680.2.5:1997. This Standard sets out lighting recommendations for a variety of tasks carried out within hospitals and medical premises, particularly tasks associated with clinical observation, treatment and care. The recommendations also apply to related tasks, such as the visual examination of biological solutions and pathology specimens, in medical laboratories.



It was suggested that the credit requirement that "maintained illuminance" levels must be "no more" than values listed in AS1680 is difficult to achieve in practice. Levels listed in AS1680 are minimum maintained illuminance levels. When designing a lighting solution it is extremely hard to achieve a maintained illuminance exactly at the minimum level required by AS 1680, due to lighting grids, achieving uniformity of the solution, etc. Inevitably the result is having to design a solution that is over the recommended minimum levels, to ensure you comply and are not at risk of being sued should someone injure themselves in the future (1).

GBCA response: Agreed. The credit has been amended to reflect the requirement that levels be not greater than 25% above the minimum maintained illuminance values listed in Table E1 of AS1680.2.3.

IEQ-14 'External Views'

It was suggested that this credit should apply to patient recovery rooms and staff areas such as offices, nurses' stations etc., and should exclude waiting rooms, cafeterias, atriums etc., where there is no true benefit achieved by external views (1).

GBCA response: The aim of this credit is to address the fact that eye strain and related health problems can be significantly reduced in situations where people can periodically re-focus on a distant object. External views are aesthetically pleasing, and there is evidence to suggest that they also reduce the stress levels of building occupants. Whilst acknowledging that waiting rooms and cafeterias may have more transient occupants than some other areas, external views are beneficial to the occupants of any room. In addition to this, the credit allows for the fact that the designated use of a particular room may change, converting a formerly more transient area to a permanently/semi-permanently occupied one.

The GBCA has excluded corridors, transitional spaces and rooms that, for functional reasons, require the exclusion of sunlight, from the definition of Occupied Functional Area (OFA) for this credit. With regard to atria, they are only required to be included in this credit if they form part of the OFA. The definition of OFA has been amended in version 1 of the Green Star – Healthcare rating tool, to include a stipulation that one hour of continuous occupation is required, rather than a total occupancy of one hour per 24-hour period.

IEQ-15 'Individual Thermal Comfort Control'

It was suggested that patients are generally not in a condition that allows them to control the air-conditioning system. In addition, it is not practical to provide individual users with access to the BMS (8).

GBCA response: The aim of this credit is to provide the ability to control the amount of air supplied to individual areas. The ability to control the air within that area is not limited to the patient, but could be achieved by a member of staff such as a nurse, doctor, etc. The credit does not encourage individual access to the Building Management System.

IEQ-16 'Exhaust Riser'

No feedback received.

IEQ-17 'Air Distribution System'

It was suggested that the wording of the credit is inadequate. It is unclear as to what is required to qualify ductwork as "clean" (2).

GBCA response: The ductwork should either be cleaned in accordance with National Air Duct Cleaners Association ACR 2006 Standard or be of the same level of cleanliness as if they had been cleaned in accordance with the National Air Duct Cleaners Association ACR 2006 Standard.

IEQ-18 'Outdoor Pollutant Source Control'

It was suggested that there is no additional environmental benefit associated with meeting the existing minimum standard (2).

GBCA response: This credit has been significantly revised. Please refer to the Green Star – Healthcare v1 Technical Manual, and the summary of changes document available on the GBCA website.



IEQ-19 'Places of Respite'

It was suggested that the criteria that constitute a "direct physical connection to the natural environment" are inadequate. It is not understood why vegetation is necessary to create a direct physical connection to the natural environment (2).

GBCA response: The criteria for this credit have been significantly revised and expanded. Indoor Places of Respite other than atria may now qualify. The requirement for the provision of vegetation has been replaced with a requirement for a minimum of 30% of the area of the place of respite to be soft landscaping.

It was suggested that the wording of the credit is inadequate. It is unclear as to what constitutes an "area of vegetation" (2).

GBCA response: The criteria for this credit have been significantly revised and expanded. The requirement for the provision of vegetation has been replaced with a requirement for a minimum of 30% of the area of the place of respite to be soft landscaping.



Energy

Ene-1 'Greenhouse Gas Emissions'

The table below outlines the feedback received during the Public Review Period, and the GBCA response explains the reasoning behind the position, and any corrective action, taken.

Feedback	GBCA Response
<i>All CO₂ coefficients are the same for each state, so KgCO₂ totals don't reflect reality (4).</i>	Greenhouse Gas Emissions Factors within the Greenhouse Gas Emissions Calculator (formerly the Energy Calculator) do differ by state. The emissions factors used are from the Australian Government Department of Climate Change document <i>National Greenhouse Accounts Factors (NGA Factors)</i> , November 2008. For more information please see the Green Star – Healthcare v1 Greenhouse Gas Emissions Calculator Guide.
<p><i>The Healthcare PILOT Tool Energy Calculator is not calibrated correctly to reflect actual energy performance of healthcare buildings (5).</i></p> <p>AND</p> <p><i>The energy calculator is not calibrated correctly. Based on actual performance data of some of the highest performing healthcare facilities in Australia, the calculator returns a value of zero points (1).</i></p> <p>AND</p> <p><i>You cannot throw a blanket across all health facilities in Australia and give them the same target. E.g. A hospital in WA or QLD will use significantly more cooling energy than one in Canberra.</i></p> <p><i>Also, small regional hospitals which do not conduct surgical or clinical procedures will use significantly less energy than a major hospital (7).</i></p>	Agreed. A full review of the Green Star Energy Calculator benchmarks and calculation methodology took place prior to the release of version 1 of the Green Star – Healthcare rating tool to address these issues. A new methodology for establishing standard practice and evaluating the performance of the proposed facility has been developed for this release.
<i>Refine weightings – link to regional geographic allowance e.g. allow for regional setting and variation as per BCA (1).</i>	The Green Star – Healthcare v1 Greenhouse Gas Emissions Calculator methodology now does take into account regional geographic variations as per the BCA.



<i>Benchmarking figures should be provided to assist with the application of this credit (1).</i>	Agreed. A description of how the benchmark is to be generated is included in the Green Star – Healthcare v1 Greenhouse Gas Emissions Calculator Guide.
<i>There should be suitable protocols for central versus satellite/isolated plant for energy modelling purposes (1).</i>	The Technical Clarifications section of the GBCA website outlines how projects should treat shared and off-site facilities. This is located under the sub-heading 'Interdependent Projects'.
<i>The tool should reward embedded energy sources such as co-generation or tri-generation, for reducing GHG emissions (1).</i>	Co-generation and tri-generation energy systems are rewarded under the Ene-1 'Greenhouse Gas Emissions' credit.
<i>Sites should be rewarded for exporting energy (1).</i>	The GBCA has formed an Energy Working Group to consider this issue. Currently the Green Star – Healthcare v1 rating tool does not reward the exporting of energy. Doing so, at this moment, would fall outside the scope of this tool. The GBCA will soon issue guidance on co-generation and tri-generation systems, and how to address the exporting of energy within the tool. This guidance will be applicable to all Green Star rating tools.
<i>Medical gases, such as compressed air and vacuum systems, are not addressed in the energy assessment (6).</i>	This credit assesses building fabric and building services. The energy consumption of medical and office equipment is related to the function of the building and is therefore not to be included in this assessment. The fact that medical equipment can have a significant impact on the total energy consumed by a health/aged care facility is recognised under the Man-13 'Sustainable Procurement Guide' credit.

Ene-2 'Energy Sub-metering'

No feedback received.

Ene-3 'Peak Energy Demand Reduction'

No feedback received.

Ene-4 'Lighting Zoning'

No feedback received.

Ene-6 'Car Park Ventilation'

It was suggested that car parks within a campus environment could not be attributed directly to one building. Most would be simply ground level spaces (1).

GBCA response: Agreed. Version 1 of the Green Star – Healthcare rating tool does not address single storey open-air car parking. Where all of the car parking is single storey open-air, this credit is 'Not Applicable' and is excluded from the points available used to calculate the Energy Category Score.



Ene-7 'Medical Equipment Efficiency'

This credit has been renamed Man-13 'Sustainable Procurement Guide'.

Ene-8 'Stairs' (Deleted Credit)

It was suggested that this credit is accounted for in Ene-1 – the lift energy consumption calculations can be varied depending on use (2).

It was suggested that the use of space within a healthcare facility may make the aim of this credit difficult to satisfy. For example, in a hospital, staff generally work in one area or ward; thus they are unlikely to travel between floors. Visitors may need to travel many storeys in order to reach their destination and because of this are unlikely to use the stairs. Patients are of ill health and are unlikely to use the stairs (2).

It was suggested that this credit does not require that stairs meet DDA requirements (2).

It was suggested that the daylight factor does not contribute to making the stair space more amenable. A daylight factor of 3.5 is not aligned with what is required to light this space (2).

It was suggested that this credit is too restrictive. It is difficult to qualify the use of fire stairs to meet the requirements of this credit. For example, the cost of specifying fire proof glazing in order to meet the criteria would be inhibitive (2).

GBCA response: Agreed. The credit has been deleted from version 1 of the Green Star – Healthcare rating tool.

Ene-9 'Efficient External Lighting'

No feedback received.



Transport

General

Tra-1 'Provision of Car Parking'

No feedback received.

Tra-2 'Fuel-Efficient Transport'

It was suggested that it is not possible for disabled parking spaces qualify as "small car spaces" (2).

GBCA response: Noted. The credit has updated to align with Green Star - Office v3. Car parking spaces dedicated for use by disabled users or parents with small children can be excluded from the total number of car parking spaces.

Tra-3 'Cyclist Facilities'

No feedback received.

Tra-4 'Commuting Mass-Transport'

It was suggested that regional/isolated projects are unfairly compromised by this credit (1).

GBCA response: Green Star credits are established on the basis of environmental impact. The environmental benefit of reducing reliance on private forms of transport, by facilitating the use of mass transport, occurs equally in rural and urban areas. GBCA acknowledges that some Green Star credits can be more challenging in a rural setting, whilst others can be more challenging in an urban setting. It is not necessary for a project to achieve all credits in the Green Star tools to achieve a Green Star rating; not achieving a credit does not prohibit any project from achieving a Green Star rating.

Tra-6 'Transport Design and Planning' (Formerly known as 'Pedestrian Routes')

It was suggested that where pedestrian routes extend outside of the site they are beyond the scope and control of the project and come under the control of the local government (e.g. Street lighting) (1).

GBCA response: This credit aims to encourage not only the provision of pedestrian routes within the development itself, but also acknowledges that the development of a healthcare facility can have a large influence on the local community and the local planning authorities: in many cases the developer can proactively influence the provision of pedestrian routes to and from the site.

It was suggested that a credit for the provision of an integrated transport plan should be included (1).

GBCA response: Agreed. This credit has been significantly revised, and now includes a requirement for the development of a Travel Plan that includes a site-specific transport assessment, and a report on sustainable transport initiatives.



Water

General

It was suggested that the weighting of water should be increased (1).

GBCA response: Agreed. The TWG considered this issue and the weighting of water has been increased in version 1 of the Green Star – Healthcare tool.

New Credit Proposals

It was suggested that the Green Star – Healthcare v1 rating tool should include credits for water audits and water management plans (1).

GBCA response: The GBCA acknowledges the receipt of this feedback. As no suggestion for such a credit was proposed, it has not been incorporated into the Green Star – Healthcare v1 rating tool.

Wat-1 'Occupant Amenity Water'

It was suggested that this credit should address facilities that include/exclude kitchens, Central Sterilising Services Department (CSSD) and/or laundries (1).

GBCA response: Agreed. However, this credit has not been changed. The Man-13 credit has been amended to address the procurement of water efficient equipment for kitchens, laundries and other equipment.

It was suggested that the re-use and recycling of water should be more highly rewarded (1).

GBCA response: Water recycled on-site by any legal process is rewarded under the Wat-1 'Occupant Amenity Water' credit, where that water is used to reduce the total amount of potable water used by sanitary fixtures. Additionally, any on-site water recycling process that reduces the total amount of potable water contributing to sewage, is rewarded in the Emissions category under the Emi-6 'Discharge to Sewer' credit. Using non-potable water in medical and building services equipment is rewarded under Wat-6, and for irrigation is rewarded under Wat-3. Any method of water recycling used by a particular project which is deemed to be innovative, may be rewarded under the Innovation category. Recognising the importance of reducing potable water use, the weighting of water has been increased in version 1 of the Green Star – Healthcare tool.

Wat-2 'Water Meters'

No feedback received.

Wat-3 'Landscape Irrigation'

No feedback received.

Wat-4 'Heat Rejection Water'

No feedback received.

Wat-5 'Fire System Water Consumption'

No feedback received.

Wat-6 'Potable Water Use for Equipment' (Formerly 'Potable Water Use for Equipment Cooling')

It was suggested that the installation of medical cooling equipment is an operational issue (2).

GBCA response: The Green Star – Healthcare V1 rating tool is an integrated fitout tool and therefore the cooling of medical equipment falls under its ambit.

It was suggested that this credit as currently worded, is difficult to enforce (2).

GBCA response: Green star credits are established on the basis of environmental impact. While ease of enforcement is a consideration, it is acknowledged that some credits will be more difficult to enforce than others. The GBCA welcomes any suggestions from industry on ways to make credits more enforceable.



Materials

General

It was suggested that the PILOT tool should be streamlined to reduce the complexity of choice in the materials section. In particular, the PILOT tool needs to be expanded for:

- *External materials; and,*
- *Durability of materials (1).*

GBCA response: Your feedback is noted. A new approach to the Green Star materials calculators is being developed as part of the Green Star Product Certification Project. Updates on the progress of this project can be found on the GBCA website at www.gbca.org.au

Mat-1 'Recycling Waste Storage'

No feedback received.

Mat-2 'Building Reuse'

No feedback received.

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

No feedback received.

Mat-4 'Concrete'

No feedback received.

Mat-5 'Steel'

No feedback received.

Mat-6 'PVC Minimisation'

No feedback received.

Mat-7 'Sustainable Timber'

No feedback received.

Mat-8 'Design for Disassembly'

No feedback received.

Mat-11 'Flooring'

It was suggested that modular carpet is not the best option for healthcare facilities due to spills and associated maintenance problems. The best carpet for maintenance of spills is sheet carpet with impervious backings (carpets can be flooded with cleaning products which can leave fluid underneath tiles). Further, sheet carpet carries the same warranties, product stewardship etc. as modular carpet (3).

GBCA response: Your feedback is noted. A new approach to the Green Star materials calculators is being developed as part of the Green Star Product Certification Project. Updates on the progress of this project can be found on the GBCA website at www.gbca.org.au

Mat-12 'Joinery'

No feedback received.

Mat-13 'Loose Furniture'

No feedback received.

Mat-14 'Ceilings, Walls and Partitions'

No feedback received.



Land Use & Ecology

Eco-1 'Topsoil'

No feedback received.

Eco-2 'Reuse of Land'

It was suggested that the PILOT tool disadvantages greenfield sites. A greenfield site is often most viable for site selection in regional and non/outer urban communities (1).

GBCA response: Green Star credits are established on the basis of environmental impact. GBCA acknowledges that some Green Star credits can be more challenging in an urban setting, whilst others can be more challenging in a rural setting. It is not necessary for a project to achieve all credits in the Green Star tools to achieve a Green Star rating; not achieving a credit does not prohibit any project from achieving a Green Star rating.

Eco-3 'Reclaimed Contaminated Land'

No feedback received.

Eco-4 'Change of Ecological Value'

No feedback received.



Emissions

New Credit Proposals

It was suggested that there should be a credit to reward the use of cleaning and disinfection products with a low environmental impact (1).

GBCA response: Green Star assesses inherent building attributes; the use of cleaning and disinfection products with a low environmental impact is an operational issue and as such falls outside the scope of the Green Star – Healthcare rating tool.

It was suggested that the disposal of hazardous waste such as bio-hazardous and nuclear has not been considered under the Green Star Healthcare tool (2).

GBCA response: The disposal of hazardous waste is a process controlled by legislation or relevant standards. Green Star aims to drive industry to the adoption of best practice, rather than to reward compliance with legislation.

Emi-1 'Refrigerant ODP'

No feedback received.

Emi-2 'Refrigerant GWP'

No feedback received.

Emi-3 'Refrigerant Leaks'

No feedback received.

Emi-4 'Insulant ODP'

No feedback received.

Emi-5 'Watercourse Pollution'

No feedback received.

Emi-6 'Discharge to Sewer'

It was suggested that the calculator should have inputs for water recycled using the process of reverse osmosis (5).

GBCA response: Any on-site water recycling process which reduces the total amount of potable water emitted as sewage, is rewarded under this credit. Water recycled on-site by any legal process (including reverse osmosis where approved by the relevant environmental authority) is rewarded under the Wat-1 'Occupant Amenity Water' credit, where that water is used to reduce the total amount of potable water used by sanitary fixtures. Using non-potable water in medical and laboratory equipment is rewarded under Wat-6, and for irrigation is rewarded under Wat-3. Finally, any method of water recycling used by a particular project which is deemed to be innovative, may be rewarded under the Innovation category.

Emi-7 'Light Pollution'

No feedback received.

Emi-8 'Legionella'

No feedback received.

Emi-9 'Trade Waste Pollution'

It was suggested that trade waste pollution is an operational issue (2).

GBCA response: The operational procedures related to trade waste pollution are not addressed by this credit. The credit addresses the attributes and functions of fixed effluent pre-treatment equipment. As the Green Star – Healthcare v1 rating tool is an integrated fitout tool, effluent pre-treatment equipment falls under its ambit.



It was suggested that the environmental benefit associated with treating trade waste locally rather than centrally is not clear (2).

GBCA response: The aim of this credit is to facilitate the recycling of water. The effluent from healthcare facilities may be tainted with pollutants at levels not normally found in urban sewage. These pollutants can cause significant problems to sewage treatment processes and equipment. Addressing these pollutants at their source by preventing them from entering the sewerage network in high concentrations, is a key step in ensuring that the effluent is a suitable resource for the recycling of water.

It was suggested that the wording of the credit is inadequate. It is unclear what is meant by the term "other pollutants". It is also unclear why total dissolved solids (TDS) have been specifically referenced (2).

GBCA response: Agreed. In the Green Star – Healthcare v1 rating tool, this credit references a comprehensive list of pollutants and other factors which need to be addressed by the effluent pre-treatment equipment.

It was suggested that the Credit Criteria require that the project must not have a variation on trade waste disposal limits, but these limits may vary for different areas within Australia (2).

GBCA response: Agreed. This has been recognised in the Credit Criteria in Version 1 of the Green Star – Healthcare rating tool. The credit now requires that all projects, irrespective of their location, meet the same acceptance criteria.

It was suggested that the compliance requirements as stated are not broad enough to ensure that the aim of the credit is met (2).

GBCA response: Agreed. In the Green Star – Healthcare v1 rating tool, this credit references a comprehensive list of pollutants and other factors which need to be addressed by the effluent pre-treatment equipment.

It was suggested that the emission associated with the disposal of waste sludge has not been considered (2).

The aim of this credit is to facilitate the downstream recycling of water. The method of disposal of trade waste sludge is incidental to the achievement of this credit, and therefore is not addressed by it. It is also noted that the disposal of waste sludge is controlled by local legislation/regulations.

Emi-10 'Airborne Emissions' (Deleted Credit)

It was suggested that the additional environmental benefit provided by this credit is not understood because laboratory exhaust is already required to meet or exceed the requirements of AS 2243 and AS 2982 (2).

GBCA response: This credit was removed from the tool.



Innovation

Inn-1 'Innovative Strategies and Technologies'

No feedback received.

Inn-2 'Exceeding Green Star Benchmarks'

No feedback received.

Inn-3 'Environmental Design Initiatives'

No feedback received.



General

It was suggested that the tool neglects to address the discomfort caused by glare from artificial lighting (2).

GBCA response: The comment regarding potential discomfort caused by artificial lighting is noted, and the submitted feedback will be considered in the ongoing review of the credits for future versions of the Green Star suite of tools.

It was suggested that it is unclear whether it is the responsibility of the building owner or the tenant to apply for the Green Star rating (2).

GBCA response: The Green Star – Healthcare v1 rating tool is an integrated fitout tool. The base building owner would apply for the Green Star rating. This information is included in the Green Star – Healthcare v1 Technical Manual.

It was suggested that the terms 'refurbishment' and 'new building' should be defined (1).

GBCA response: It is unclear which aspect of these terms needs to be defined. In the case of a project specific query, please contact the GBCA.

It was suggested that the terms 'Design' and 'As Built' should be defined (1).

GBCA response: The Green Star – Healthcare v1 rating tool enables projects to assess environmental impacts at the design or construction phase of a building's life-cycle. When registering for certification under the Green Star – Healthcare v1 rating tool, projects must indicate whether they are seeking a 'Design' rating or an 'As Built' rating. All details are provided within the Green Star Eligibility document on the GBCA website.

It was suggested that the GBCA should review the PILOT assessment process to include the provision of staged developments of facilities (1).

GBCA response: The comment regarding the benefits of being able to assess separate stages of a development for a PILOT rating is noted, and the submitted feedback will be considered in the ongoing review of the PILOT assessment process.

It was suggested that the GBCA should review the PILOT assessment process to reduce associated costs, e.g. the cost of modelling (1).

GBCA response: The GBCA is continually looking for means to decrease the costs associated with compliance with Green Star credits. Any suggestions from the industry are welcomed; however the GBCA must ensure that any alternative method of compliance is of equivalent robustness to modelling.

It was suggested that definitions or notes on how existing facilities relate to planned new facilities when applying for a Green Star rating should be included in the tool (1).

GBCA response: All base building Green Star rating tools assess the entire project, regardless of whether the project is new or existing. The Green Star – Healthcare v1 rating tool enables projects to assess environmental impacts at the design or construction phase of a building's life-cycle. When registering for certification under the Green Star – Healthcare v1 rating tool, projects must indicate whether they are seeking a 'Design' rating or an 'As Built' rating. All details are provided within the Green Star Eligibility Criteria on the GBCA website.

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