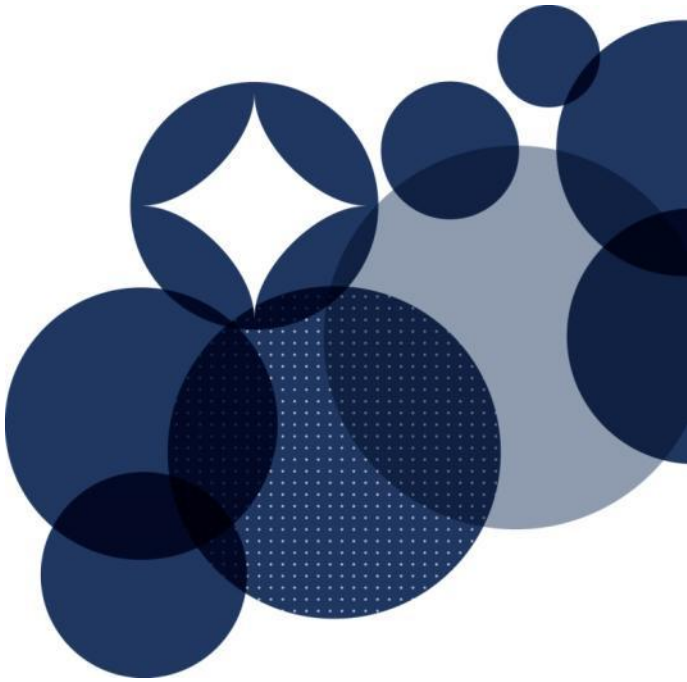

Design & As Built Consultation Paper Responses

Appendix A

January 2014

greenstar Developed by the Green Building Council of Australia

Q: What would a successful Green Star – Design & As Built rating tool look like to you? In other words, on what outcomes does the success of the project rely?

A successful Green Star 'Design and As-Built' rating tool would be one that leads to ALL building construction, upgrading and operation being "green".

Green Star should be a unified, cost-effective, performance-based, streamlined and easy to use online rating tool that achieves broad uptake and penetrates to all level of the Australian building market including all quality grades in all sectors.

A Green Star Design and As Built rating should recognise good design and construction and score the merits of each element irrespective of building age or grade. In other words the rating should recognise that a good building is a good building.

A Green Star Design & As Built rating should acknowledge the attributes of a building as a whole assessing firstly the design attributes and secondly the as built attributes in a method that is interrelated but not interdependent. There should be tolerances for changes, particularly improvements, to be incorporated as part of the 'as built' process so as to discourage the current hierarchical thinking where the design level is the most principled and therefore the highest scoring part of the Green Star rating and then the as built stage becomes a compromising exercise where elements of the design component are diluted or substituted. This would create greater expectation on the design phase to remain innovative but practical and would also allow the construction phase more opportunity to innovate which should be encouraged.

The Green Star Cyclical diagram (> Design > As Built > Operation >) is indicative of a vision that encompasses all buildings into a single performance/outcomes based rating system that extends in a continuum from older buildings to "new" across all building stock. This would, at one end of the continuum, assess good (i.e. green) design elements and building attributes in, say, an older building regardless of refurbishment level and drive market appreciation and building value in existing, good, building stock.

A rating tool reliant on self-certification by an accredited assessment professional, and interactive with the certification authority (it would look like the BCA with Private Certifier approach, or NABERS). The rating of buildings can be undertaken by appropriately qualified professionals via a simple self audit and certification method (examples include BCA with Private Certification, NABERS, and BREEAM).

A tool that better meets the needs of the building developers who are not currently choosing to use the tool (often due to the cost of certification). For example:

- The tool needs to enable simple and easy access, monitoring and use from the Client's perspective, and
- Balance the minimisation of additional input from the project team over and above their regular appointment (for time and cost efficiency) with the need to ensure project teams actually do act differently to ensure sustainable building outcomes.
- An online tool that provides a platform for facilitating the submission process across teams. The tool would allow multiple user access, collaboration and feedback. The success of the 2014 project relies on enabling project teams to complete the rating within reasonable timeframes and at minimal added administration costs.
- Case Managers must have authority to make decisions on ratings. Also, the ability for Assessors to use logic and make decisions based on 'equivalent' documentation (to a reasonable degree) outside the exact letter of the Tech Manual is also necessary.
- Alternative/updated Green Star tools should be consistent with the approach taken to Design & As-Built.
- The "as built" process needs to have measurable outcomes, as right now the design framework is an improvement but the as built side seems to miss the mark in terms of outcomes.

Optional simplified credit compliance paths offering less than the maximum credit points available to those projects opting not to undertake more complex modelling.

An approach that leads stakeholders to good, balanced outcomes (e.g. well considered passive design and façade design with simple effective HVAC) rather than placing added responsibility on engineers to "score credits" (e.g. through complex HVAC and other systems that need ongoing owner commitment to properly operate and maintain).
The key outcome is that the building will deliver on environmental and occupant health outcomes in operation, so the tool needs to better incentivise commitment to future As Built and Operational ratings.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The project needs to make it easier to put together a submission, in order to reduce costs for projects and for the GBCA (assessor costs) in order to ensure that a greater number of submissions from a broader range of assets can be certified.

– **Owen Grace, Brookfield Multiplex**

Obtaining the rating needs to be seen as an achievable goal but also one that has value & can be marketed to the tenants and future owners of the project.

More & more we are seeing the push for this accreditation to be used by clients & the building companies that look to use its successful use on past projects as a point of difference to win future works.

We need to increase the uptake of the program and encourage buildings that only make 3 stars to go after 4 & so on.

– **Jake Hickey, Instant Waste Management**

A successful Design and As-Built rating tool needs to align itself with the industry as it exists today, whilst being robust enough and and yet adaptable enough to be future-proofed for tomorrow's trends in the industry. The Design and As-Built also needs to streamlined, online and interactive.

– **Oliver Grimaldi, Cundall**

Simple to use, wide reaching including small projects, inspires innovation, recognises industry leaders but also allows certification of sensible sustainable design, cost and time effective, simple to use and understand, transparent.

– **Matt Fitzgerald, NDY**

Reduce cost of certification may increase the number of smaller buildings being rated. The online portal needs to be robust.

– **John Mabb, Gold Coast City Council**

Performance based, we need to move away from design and as built to a holistic design, as built and performance, real environmental benefits need to be measured in real time for greater benefit for our clients and decreased impact on the environment.

Less prescriptive on how to achieve the outcomes, let the design team convince the assessors that what the outcome address the objective, this will allow for more innovation and less check box response.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

The tool should be complete before it is issued to the public. It should have easy to understand language and all the credit requirements should be in one spot. You should not have to read through additional guidance section to understand what actually needs to be provided as supporting evidence. When CIR and TCs change the credits requirements (for example when certain documents are no longer required to be submitted) the new tool should be in such a format that allows the credit requirement section to be changed easily so it is always up to date.

– **Peta Earley, Norman Disney & Young**

A successful outcome would be a tool that is more attractive to and better meets the needs of building developers who are not currently choosing to use the tool (often due to the cost of certification). The move towards optional simplified credit compliance paths offering less than the maximum credit points available to those projects undertaking more complex modelling is welcome. Overall the key outcome is that the building will deliver on environmental and occupant health outcomes in operation, so green star needs to better incentivise commitment to future As Built and Operation ratings (even if the latter is NABERS not Green Star Performance).

– **Michael Shaw, Connor Pincus Group**

Key parameters from an HVAC&R POV are energy efficiency, GHG emissions (direct and indirect), safety, and air quality. Please note the relative contribution of of HVAC&R to the first two. These need greater recognition and should be integrated in a dedicated HVAC&R tool because they are two sides of the same coin. Safety should be addressed separately. There are many HVAC&R considerations that you need to understand before finalising this set of considerations. I have delivered these separately.

– **Tim Edwards, Australian Refrigeration Association**

More streamlined submission requirements including required documentation to demonstrate credit compliance. Standardisation and consistency in assessments and the awarding of credits.

– **Mark Tickle, Grocon Group**

A robust but transparent tool that carefully balances very streamlined documentation requirements with Quality Assurance.

– **Stephen Choi, Viridis**

Quick uptake of the new tool by industry and Governments
External recognition that this sets a new standard for Green Buildings - regaining market preeminence
If a new 'certified rating' is created than a significant increase in the number of buildings applying for certification - 2nd and 3rd tier developers engaged
Reduced cost of certification
Market perception is that the process is clear and process path improved.

– **Ross Davies, BlueScope**

An unambiguous tool that focuses on initiatives and not just the process and documentation. A tool that supports the design process without forcing additional design work. One capable of becoming enshrined in this country's legislation such that the rigor with which the design principles are applied is uniform across all buildings. A tool without conflicting or mutually exclusive credits (eg black water and energy). A tool that doesn't require substantial extra cost and time to achieve success.

– **Nicki Parker, AECOM**

Easy to use (online submission and certification process), less prescriptive and addresses other issues like economical, financial and whole-of-life cycle impacts (embodied water and energy).

– **Haris Moraitis, BSE**

A successful tool will address all building types but allow sufficient flexibility to the idiosyncrasies between the building types. The process for collating, organizing and submitting of data need to be streamlined and efficient. This is critical to the delivery on small projects where the paper work side of things can prevent a rating being pursued

– **Samantha Andersom, Inhabitgroup**

A complete change to the assessment and certification process should be considered as part of this project.

Design needs to be changed to reflect industry benchmarks. A successful tool should have greater market penetration - every type of building and owner, detached housing, and easily scalable. The tool should pave the way for increases in regulations through the NCC and eventually for a green building code. A large portion of the market will not embrace change without regulation. The tool can be instrumental in demonstrating the viability of higher levels of performance in industry and driving down the cost of these outcomes through scale and experience.

– **ESD Team, Australian Engineering Consultancy**

The diversity of existing tools should be maintained / achievable within a single comprehensive tool, not 'dumbed down'. A connecting structure between the upfront construction costs (capex) and ongoing costs (opex). This should be able to generate a new tenant based approach to real estate.

– **Evan Atkinson, The Buchan Group**

A successful tool will be:

- Clear and simpler to use.
- Consistent in its approach and easy to follow aims and compliance criteria.
- The tool should be able to be used by a majority of buildings types without or with very little modification. Any modifications to the structure of the tool should be easily completed by a qualified and experienced GSAP.
- Reduce the amount and difficulty of documenting "for Green Star".

- Streamline the process of completing an As Built rating following a Design rating. Certifying a design should give you a clear advantage in demonstrating compliance for an As Built rating.
- It should give the GSAP the responsibility and "tools" to advise a design team on how to make their project more sustainable, and allow them to give this advice in a timely and consistent manner.
- It should engage the design team to always deliver a more sustainable outcome.

  – **The Sustainability Team (Wood & Grieve Engineers)Wood & Grieve Engineers**

Similar to my answer on what a successful rating tool would look like:

- keep progressing the construction industry's move towards increasingly sustainable practices and built form outcomesreward
- those that achieve beyond best practice and maintain the desirability for setting this as a project goal.!
- move the current rating tools away from rewarding sustainable project 'design' in isolation of 'as built' final output to
- ensure sustainability is 'realised' in the final outcome.

  – **Natasha Prasaek, pdt Architects**

The ability to use Green Star as a marketing tool for owners/Developers and some flexibility through Design to Construction to evolve the built-form to achieve the best outcome or targeted rating.

  – **Michael Kilmartin, Brookfield Multiplex**

The tool needs to be simple and easy to use from the Client's perspective, and involve minimal additional input from the project team over and above their regular appointment. The rating of buildings can be undertaken by appropriately qualified professionals via a simple self audit and certification method (examples include BCA with Private Certification, NABERS, and BREEAM).

  – **Director, ESD Consultancy**

- Delivers buildings that attain excellence in both social and economic sustainability
- Ensures buildings are effective and efficient in their operation without the need for substantial retrofits to meet the functionality needs of end users
- Contributes

  – **John Casey, Facility Management Association of Australia**

A single, easy to use online tool that helps track documentation and streamline the submission process. Much as described on p6 of this paper. Similar to LEED in managing all documentation, data, drawings, etc. and includes example credit submissions for each credit.

Ideally web-based & optimised for various devices, not just PC.

– **Sebastian Carr, Sustainability House**

A deemed to satisfy tool that allows points to be immediately secured by committing to a set design criteria (or approved alternative solution) that is then approved by an independent certifier.

– **Douglas Rennie, Vaughan Constructions**

- Reduced cost of certification at all stages of project and certification
- Streamlined submission and assessment process - goes hand in hand with above
- More deemed to satisfy criteria
- Less uncertainty in assessment
- Less prescriptive
- A tool that is flexible and addresses key issues for each sector - i.e. not so "office" focused for non-office projects
- Maintain innovative aspects of tool - 6 star must still be world leading
- Becomes the tool of choice for projects in Australia - would be good to make it the only GBC tool that can be used here.

– **Paolo Bevilacqua, Australand**

The success of the project, from an environmental standpoint, is measured by its ability to perform at a higher level than other buildings. This is not measured by design and only by operations.

– **Darren O'Dea, Inhabit**

Projects should require the compulsory use of an ICA (improved version) with a well defined role for all As Built ratings.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: What kinds of issues do you think the new Green Star – Design & As Built rating tool should address that are not currently or adequately being addressed by the existing suite of Green Star rating tools?

- A performance based approach complimented by a simple “deemed to satisfy” type route
- The ability to satisfy the performance criteria in other ways (e.g. life cycle assessment approach).
  TEWI (Total Equivalent Warming Impact) calculations for air conditioning and refrigeration systems
- A life cycle assessment approach to construction materials and methods (e.g. performance requirements on carbon footprint, emissions, natural resource depletion, toxicity, waste/recycling).
- New lighting technology, such as LED, and outdated credits that penalise broader application of these.
- Alignment of Green Star requirements with other industry requirements and guidelines (e.g. planning documents and Government guidelines).
- The current shortcomings of the Green Star tool are the large reduction in As-Built certified projects compared to Design projects. This is partially due to the large and onerous documentation requirements for As-Built projects.
- The as built package should include specifics on how you get the knowledge transferred from the design and construction teams to the management and end users. As an example we regularly see “building guides” as nothing more than a repeat of the project specification or user manual which clearly miss the mark in day to day management.

Currently architects and building designers are not ‘pulling their weight’ on passive design issues such as orientation, massing, extent of glazing, effective external shading and effective daylight design. The tool should identify (probably implicitly) the parties correctly responsible and force them to take responsibility for these attributes so that the building owner is not forced into complex and costly building services infrastructure to compensate for out dated architectural decision-making. For example: the inclusion of simple calculators for building facade thermal performance and daylight would enable architects to better understand the impacts of their own decision-making at an early design stage.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The tool generally covers most important issues to the design and construction of buildings. Balance between the individual issues could be addressed better.

– **Owen Grace, Brookfield Multiplex**

More focus on the big ticket items that produce a considerable affect on the level of GHG produced over the whole projects life span.

– **Jake Hickey, Instant Waste Management**

Life Cycle Assessments / Carbon Footprinting is certainly a key component missing from the existing Green Star tools. The new Innovation Challenges are a great way to introduce the life cycle assessment thinking into the industry, but embedding them in the main categories is essential for the next steps into sustainability; thinking about the built environment from cradle to cradle, rather than just in the operation during the building's life span.

– **Oliver Grimaldi, Cundall**

Life Cycle Assessment/Analysis (not to be made compulsory though - only for high achievers)

– **Matt Fitzgerald, NDY**

Life cycle assessment

– **John Mabb, Gold Coast City Council**

- Landscape - Plant selections
- Biodiversity - Plant and animals
- Chemicals and Materials - Similar to the LBC Red List
- Product Mileage - Distance products and materials travel from to get to the construction site
- Whole-of-life analysis - cradle to grave ratings, the bigger picture for products and materials

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

It should make submitted an As-built rating easier, if the project has already achieved a Design rating. While Green Star has started looking at this for some credits, it should be applied to all credits within the tool. For example, for IEQ-1 Ventilation rates, where this is achieved though improvement on outside air for mechanically ventilated systems, in the as-built rating the only things that should be providing are the commissioning results showing that the outside air achieved for each space/AHU matches the values that were approved in Design, given the building area or form has not changed.

– **Peta Earley, Norman Disney & Young**

I currently see architects not pulling their weight on passive design issues such as orientation, massing, extent of glazing, effective external shading and effective daylight design. The tool should be pushing architects to take responsibility for these attributes so that the building owner is not forced into complex and costly building services infrastructure to compensate for poor architectural decision-making. The inclusion of simple calculators for building facade thermal performance and daylight (could be currently proposed as parallel compliance paths to avoid modelling) will enable architects to better understand impacts of their own decision-making at an early design stage.

– **Michael Shaw, Connor Pincus Group**

Green Star does not place enough emphasis on HVAC&R. It is over 50% of emissions and efficiency. It is the subject of considerable innovation and regulatory change. These factors needs to be understood before Green Star can be finalised from an HVACR POV

– **Tim Edwards, Australian Refrigeration Association**

Greater recognition and incentive to submit innovation credits. Inconsistencies in assessments of submissions

– **Mark Tickle, Grocon Group**

- Flexibility to accommodate different building types.
- Ability to sign-off on agreed components that reflect the requirements of your building including mixed use.
- Different metrics for specific building types including for example, energy consumption for 24/7.
- Challenge of satisfying building developers who may wish to on-sell and require a design rating vs builder owners who might want to provide a shell or meet the requirements of tenants who might want a design rating assurance from the owner rating and opportunity to arrange their own fitout and establish their own rating.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

The tool could expand its reach well beyond what it has done in the past - at present Green Star very much pushes average projects to do better, but this is often still 'less bad' instead of 'more good' when it comes to environmental outcomes. To actually call a 6 star rating 'world leading' the bar needs to be set higher.

– **Stephen Choi, Viridis**

- Encourage the building of long life structures designed for refit and refurbishment - Adaptation and Resilience
- Encourage LCA/EPD transparency by the adoption of En 15804 methodology
- Promote sustainable supply chains
- Community sustainability - promote the use of local industry and materials

– **Ross Davies, BlueScope**

Embodied carbon, operational waste, social sustainability initiatives within a design, district infrastructure sharing and installation, urban heat island and microclimate, engaging stakeholders in the sustainability impacts and benefits, soft landings approach, whole of life assessment, commitment to a Green Star Performance rating.

– **Nicki Parker, AECOM**

Economical, financial and whole-of-life cycle impacts (embodied water and energy)

– **Haris Moraitis, BSE**

Currently passive design and building envelope optimization are not well rewarded in Green Star. Too much focus is on reducing the services people seem to think have to be there, as they can not expand their thoughts to a building that does not "need" air conditioning.

– **Samantha Andersom, Inhabitgroup**

Cradle to cradle impacts - LCA. Placemaking. Landscaping impacts. Increased incentives for on-site renewables. Whole of carbon solutions - off-site solutions. Social metrics. Zero impact benchmarks. More emphasis on existing building refurbishments.

– **ESD Team, Australian Engineering Consultancy**

Capability of buildings to passively condition their air, with help of mechanical engineering systems, including focus on physiological cooling impacts (-2to4 degree perceived) instead of just wet bulb calcs. Grey water filtration / flushing and energy from waste didn't seem to appear as a promoted option.
Also a general metric to readily identify 'direct action' on resource efficiency and ecological benefit to surrounding context and climate. This metric should be interchangable with existing megajoule credit systems.

– **Evan Atkinson, The Buchan Group**

- Life cycle assessment (only as innovation at this stage).
- The impact of a building on an Authority's assets and infrastructure. For example, if major upgrades are required and they exist outside the boundary of a site they are excluded from Green Star

– **The Sustainability Team, Wood & Grieve Engineers**

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- Address the need for better rewarding those that regenerate / adapt existing building stock & brownfield sites!
- Address the need for a tool that can be used by the residential sector for single dwelling housing !
- Increase the significance of good la (incomplete)

– **Natasha Prasaek, pdt Architects**

The time and expense involved in preparing Green Star submission documentation and reports, required solely by third party assessors. The environmental impact of construction materials and methods (carbon footprint).

– **Director, ESD Consultancy**

Sustainability and life cycle analysis goals that minimise operational costs over the life of the asset.
- The current success of the tool is in part due to developers embracing sustainability to ensure their facilities can be considered for leasing by government departments, but recent staffing and spending cuts have the potential to soften both government and private demand for green buildings.
- Should the green star rating tool offer a more holistic outcome for sustainable buildings, which includes a focus on delivering real cost benefits and efficiencies over the life cycle of the asset, it will strengthen the demand for green star across the market.

– **John Casey, Facility Management Association of Australia**

Proximity to site of materials sourced for projects to ensure transport is not excessive.
Credits addressing the heat island effect should be included.
Carbon accounting / auditing
The proposed inclusion of LCA in the Road Map is welcomed by Sustainability House.

– **Sebastian Carr, Sustainability House**

Physical inspections

– **Douglas Rennie, Vaughan Constructions**

Performance - although this is about to be addressed
No design certification - check only
GS Performance commitment agreement potentially instead of as built
More focus on people and user experience rather than environmental performance

– **Paolo Bevilacqua, Australand**

Passive design are not directly assessed by GSDAB. This is clear given the poor performance of GSD facades across Victoria and NSW. A clearer priority needs to be given to the passive design elements of design, built and operations.

– **Darren O'Dea, Inhabit**

On the surface of it, the belief is that an As Built rated building will be delivered to function with a level of efficiency that reflects the modeled/intended design outcome. What is actually being delivered can be quite different.

The Design rating is based on the design (obviously), not delivered. The As Built building can differ greatly from the design, including changes to mechanical plant and configuration. It appears as though all that really needs to happen is to alter the design and submit it for review and approval. Then, as long as what is built reflects the updated design it appears as though this is acceptable. Projects often reach the end of the warranty/tuning period without performing as indented.

This needs to be fixed and buildings should be performing at a reasonable standard - at least by the end of the tuning period.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Do you agree with the above project objectives and outcomes? Are there any other outcomes or objectives that you believe should be addressed by Green Star – Design & As Built?

Agree to the stated objectives and outcomes.

Additional outcomes should include:

- Creating a direct flow into existing building performance rating tool (and other GBCA tools)
- Streamlining the assessment process, which is critical to maintain engagement with industry, particularly in sectors other than
- Premium and A Grade new commercial office building types.
- Public reporting and feedback to the industry, what works and, importantly, what doesn't work, cost benefit analysis of solutions and innovations. Innovative solutions need to be shared with industry and a feedback mechanism created between green developments and industry.
- The tool should integrate and align with the other ESD related targets or processes such as NABERS, CBD and BCA Section J.
- Integration or recognition of complementary assessment methods, tools and rating systems, across all categories (e.g. BREEAM, Passivhaus, LEED), or the ability for these to be appreciated using a one off assessment and approval process. These 'approved' tools would then be published and available for all subsequent projects to utilise.
- Provide clarity around how Green Star achieves or assists in achieving "sustainable outcomes in design, construction and operation of buildings" right now the industry appears to use the process for promotional purposes and ticking boxes and this is in part due to the model and the mechanisms for achieving compliance.
- An improved system at less cost to the industry is a good thing; however it should be noted that the system should not be simplified to the extent that it reduces the effectiveness of driving sustainable outcomes. The current weighting system and tick box approach lends itself to designs that only target specific areas of environmental excellence. The performance tool has removed the weighting system and it would be simpler if weighting is removed all together.

  – **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The above project objectives are suitable for this review.

– **Owen Grace, Brookfield Multiplex**

I agreed with the above & would go one step further to state that cost is the main driver to getting more green star buildings accredited.

We need to become the majority not the minority of buildings in the market place. only then will the GBCA be accepted as an industry wide acceptable norm.

– **Jake Hickey, Instant Waste Management**

I agree with the above project outcomes; maintaining Green Star's prestige and robustness is important.

Other objectives could be as follows

- Cater Green Star to be more cohesive with D&C, as well as other, type of construction projects.
- Start to address the other important axis of sustainability; social and economic. The current tool is fantastic at focusing on ecological sustainability, how can Green Star become the rating system of choice that addresses social and economic sustainability too?

– **Oliver Grimaldi, Cundall**

One of the issues at the moment with Green Star is a lack of education for suppliers and subcontractors in the industry. This lack of education is the source of non-compliances with Green Star criteria, poor quality documentation and a great deal of wasted time and effort. The GBCA should consider ways they can work with other industry groups to improve education of these groups.

– **Matt Fitzgerald, NDY**

A simpler, cheaper rating system should have the outcomes of increasing the volume of projects for certification, particularly those smaller buildings.

– **John Mabb, Gold Coast City Council**

Yes I agree with the above outcomes. As long as GBCA is proactive and adaptable to changing market conditions, then it will remain relevant and resilient in the rating tool market.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Additional objective: Streamline the As-Built submission process, where project teams have achieved a Design rating for the project. (This would hopefully encourage more of the industry to register for and achieve an As-built rating).

– **Peta Earley, Norman Disney & Young**

I agree that the tool should integrate better with other green star tools, but it should also integrate with other things. The tool should integrate and align other mandatory and commonly used voluntary ESD related targets or processes (such as NABERS, CBD and BCA Section J).

– **Michael Shaw, Connor Pincus Group**

I agree with all above excepting "Provide a simpler, more user friendly and cost effective user experience"

The built environment is a critical contributor to sustainability and a leader is sustainability. The objective is to get right - not make it inexpensive or easy. If you want a cheap and easy version make such available for those that need / want it, but don't undermine this critical voluntary source of improvement.

Innovation is paramount in HVAC&R - the technology foundation of the industry will change in the next few years. It is critical that

HVAC&R rating consider design, commissioning, maintenance and decommissioning. Any of these can frustrate the whole if not properly handled.

– **Tim Edwards, Australian Refrigeration Association**

The integrity of the process must be maintained yet become streamlined

– **Mark Tickle, Grocon Group**

The objectives and outcomes listed are all commendable.
From a public sector perspective there is emphasis on any efforts to drive down compliance and accreditation costs. Within the public sector there is less focus and benefit on using accreditation as a marketing tool or point of difference.
It would seem important given other information in the Consultation Paper to outwardly promote the concept of triple bottom line awareness and with it, encourage associated innovation, appropriate practices and outcomes in the built environment.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

I agree with the outcomes as a whole and in general, but I think there is a serious tension between being the 'rating system of choice' and at the same time promoting Green Star rated buildings as being market leaders. In other words, the tool places itself outside of the mainstream by way of differentiation when compared to current building practice, but its role (the role of the GBC as a whole) is to address the mainstream.

– **Stephen Choi, Viridis**

Promote long term built environment sustainability rather than a short term focus

– **Ross Davies, BlueScope**

Green Star should push the industry forward and inspire for best practice. Become integrated into the building legislation of Australia such that the design principles advocated by the GBCA become universal.

– **Nicki Parker, AECOM**

One of the most important objectives is to transform and influence the industry to innovate the create projects that stand out from the current Green Star and Best Practice projects. Push the envelope!

– **Haris Moraitis, BSE**

Yes, I do agree with the project objectives.

– **Samantha Andersom, Inhabitgroup**

Remove the weighting system. We agree that the tool should address all building uses and sizes - such as single family residential. An expanded credit pool to provide the opportunity to customize the tool to the building type. Look at the online BASIX process as a good example. Make the tool more accessible for individual residential building owners. Should provide credit for achieving credit under alternative rating tools. Adoption of a process that provides new regulatory requirements within the NCC.

– **ESD Team, Australian Engineering Consultancy**

Yes, Once it is delivered, shifting toward the operational and constructed with design as being a result, rather thant the other way around.

– **Evan Atkinson, The Buchan Group**

Yes - agree with above objectives / outcomes generally!

- Address sustainability more holistically - environmental as well as socio-economic factors (as per Communities rating tool)!
- Assess the design and construction of buildings and site / environs (expand upon 'Land Use & Ecology' credits to better integrate hard / soft landscape & urbane design aspects of projects)

– **Natasha Prasaek, pdt Architects**

I agree. Streamlining the assessment process is critical to maintain engagement with industry, particularly in non-commercial office building types.

– **Director, ESD Consultancy**

There should be focus on operational and long term goals that ensure:
- The facility is both aesthetically pleasing and is built for purpose, to meet the requirements of potential end users
- Expected operational costs for the facility are within an acceptable budget range
- Building features that require the user or facilities manager to operate it effectively, are designed to be managed simply and efficiently

The inadvertent inclusion of elements that lack operational/'real world' practicality may not be maintainable throughout the life of the building due to costs, behaviours or resources. As such it is likely, that those features will become the first items removed from operations and the operational budget.

– **John Casey, Facility Management Association of Australia**

Yes, these objectives are comprehensive.

– **Sebastian Carr, Sustainability House**

Green rating projects are a field day for consultant fees. Get rid of the mystery. The main objective should be about getting developers financially interested in going green.

– **Douglas Rennie, Vaughan Constructions**

Consideration should be given to a Green Star Performance "commitment agreement"
Simple equivalency rating to LEED and BREEAM
Agreement at WGBC level that local tool must be achieved prior to others being used

– **Paolo Bevilacqua, Australand**

Given the passive design prioritize within JV3 modelling, it would be great to see this used to be a component of a GS deliverable.

– **Darren O'Dea, Inhabit**

Generally agree with the above though a great deal of caution must be given to not devaluing the Greenstar brand by oversimplification.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Do you have any other suggestions about these or other project drivers for Green Star – Design & As Built?

International alignment: and clarity for multi-national corporations on how this platform works in a global environment – there are regularly questions from multi-national corporations around alignment of reporting and key metrics to meet the 30 plus rating systems at play globally.

Performance: rather than design features, should be the focus.

Passive design: encourage architects to consider passive design more at the early concept stage.
Outcome: Penetrate well beyond the top tier developers, designers, builders, managers into mainstream practice (e.g. grade B and C offices, suburban and regional buildings).

Precinct initiatives: such as precinct recycled water, precinct thermal solutions, precinct energy should be easily rewarded for individual buildings within the precinct in the new Green Star tool without having to lodge CIR or TCs. Green Star should understand that the time to implement such initiatives is heavily dependent on load from the precinct - the first buildings in the precinct will typically not provide this load, therefore the precinct infrastructure is typically delayed. Recommend a period of 2 years be allowed for individual buildings to be connected to precinct infrastructure and still award the credit provided sufficient evidence can be provided demonstrating the initiatives intend on being implemented.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The project drivers are suitable for this review.

– **Owen Grace, Brookfield Multiplex**

About time we had one tool to do and measure all projects with.

– **Jake Hickey, Instant Waste Management**

The Education tool needs to be split into two separate tools; one for Higher Education (Universities) and one for Schools (primary and secondary schools). Universities have considerably higher budgets, standards and demands that those of schools. There needs to be a 'lighter' more streamlined tool for schools, as they are currently being priced out attempting to rate their buildings.

– **Oliver Grimaldi, Cundall**

What is the ability to rate mixed use buildings?

– **John Mabb, Gold Coast City Council**

Get governments back on board with Greenstar, Our Government needs to be seen driving the expectations for sustainable buildings, The QLD government has dropped all Greenstar from their briefing requirements, Defence at the Federal level was once the post boys for Greenstar but it too is not top priority for them.

If government is engaged then so will the commercial sectors.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Reducing the costs of submitting a Green Star rating is currently a real issue and has meant that many projects we now work on are asking for "Green Star equivalence", which really doesn't mean anything!!

This tool should really focus on reducing the number of documents required for submission. On most projects the documents that are submitted are often not documents that would generally be produced for a standard project, or where they are they require additional marking up or additional details added to them, to make the assessment process easier. That is all very well, but these are the items that are adding costs to projects. Maybe having a more transparent assessment process would reduce this. That is, allowing the project team to meet with the assessment team and effectively been interviewed by the assessment team on the project. They could talk through design drawings and design intentions and the assessment team could ask for additional information to be submitted only where they believe is necessary. Also, putting more responsibility on the GSAP's could assist with reducing the need to have so much documentation submitted to the assessors.

– **Peta Earley, Norman Disney & Young**

Please use the redevelopment of the tool as an opportunity to encourage architects to consider passive design more at the early concept stage.

– **Michael Shaw, Connor Pincus Group**

I am not qualified to comment. My intuition is as above. Let's get it right rather than make it easy. If getting it right means drawing the distinction then draw it.

I suspect a critical element that I do not see well incorporated is the issue of split incentives - major impediment to HVAC&R improvement.

– **Tim Edwards, Australian Refrigeration Association**

It is only natural to expect a ratcheting up of what might be called the 'new normal'. This demonstrates that the industry is embracing a more sustainable vision.

Given that some of the fundamental aspects of environmental awareness have gained acceptance by evidence of the increased usage of the design tools, it is now timely to venture into those less well understood yet equally relevant and important aspects such as the selection of materials and its interconnectedness with not only the amenity of the working environment, but also preservation of scare resources, reduced pollution and waste.

Clearly, the relationship with social influences and impacts is difficult, but regarded as an opportunity to do better. This engagement with the community is complex yet essential because we are all stakeholders and a product of our cultural history and amenity of our environment.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

The documentation costs result in initiatives being value-engineered, which is perverse.

The tool does not lend itself well to projects with limited funding, e.g. the single householder, and it really should - even if it does not make the GBCA much / any money.

– **Stephen Choi, Viridis**

Regain the position as the leader in sustainable development. There is a perception that Green Star is now outdated and more BAU at the top end of the market than leading and that it is not taken up by 2nd and 3rd tier developments.

There is a new wave of momentum in Australia toward resilient and adaptable building stock this provides further drive for Green Star to use this to help drive holistic sustainability in the built form.

– **Ross Davies, BlueScope**

The focus should be shifted from the documentation process to the design aspects. The tool should be made more attractive for smaller projects. A simple and universal approach is likely to result in less complaints, criticism and ambiguity. Incorporation of government grants, tax breaks or other financial incentives to encourage further uptake.

– **Nicki Parker, AECOM**

Agreed

– **Haris Moraitis, BSE**

I think there needs to be great focus on encouraging people to look at passive measure and really think about envelope performance.

– **Samantha Andersom, Inhabitgroup**

Retail Green star projects have not been successful, and exist more directly on their tenants ability to sustain the capex. This should be taken into consideration as a future strength, rather than a past weakness of the Green Star.

Also Candian systems BomaBest and Greenglobes offer a simple registered system, and recommend this project review the benefits of that system

– **Evan Atkinson, The Buchan Group**

Clarifying requirements and expectations to ensure all project teams submit high quality submissions and that assessors judge projects accurately and consistently. We need a collaborative approach between assessors / case managers / GSAP / design teams

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Agree with the above drivers generally.!
I believe there will need to be a stronger shift towards regeneration / adaptation of existing stock in the future (as seen in the UK / Europe) , as opposed to the current focus on new build, to increase Australia's sustainability in the built form. Would like to see the new rating tool embrace this through the credits / weighting.

– **Natasha Prasaek, pdt Architects**

Design cost are over inflated by an over complicated tool / process that allows consultants to charge exorbitant fees knowing that because the tool is a bit of a mystery, they can get away with it. If you spend $300k on green fees alone for a building that costs $15m overall - aren't you better off just spending $300k on a better building?

Let's face it; constructing a new building is not green - no matter what initiatives you incorporate.. the tool puts too much focus on creature comforts for the occupiers and not enough on the environment or incentives for developers

– **Douglas Rennie, Vaughan Constructions**

Some concern over the expanded definition of sustainability which may make it more difficult to benchmark buildings against one another. Suggest the sensitivity of the impact of the social credits is tested on a couple of projects. I support expanding the definition however just need to ensure that some minimum environmental hurdles are still being met. Perhaps this could be solved through some minimum category score requirements for each star rating as per Communities.

– **Paolo Bevilacqua, Australand**

Often see the process of ICA value managed out. This is because it is perceived as more economical to gain points in other areas. If the ICA is providing a quote to genuinely do the full scope of their role I completely understand that it is often not viable.
Overall the cost of greenstar could be reduced but the economics of ICA need to be addressed separately.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: What types of buildings do you think should or should not be eligible for assessment under the new Green Star – Design & As Built rating tool?

All building types should be eligible, including individual dwellings.

Green Star already includes conditional requirements for greenhouse emissions (e.g. office ratings) and building envelope thermal performance (e.g. residential ratings) However, this is usually not well considered by architects at the design inception, a way of encouraging architects to take responsibility for their passive design decision-making at an early stage in the design process would be beneficial.

– **Phil Wilkinson,Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

There are no additional building types that should be excluded from this review.

– **Owen Grace, Brookfield Multiplex**

All buildings should be able to be assessed. why have a 50% unable to be occupied as a criteria, surely its better for us to encourage building renovation to be done to GBCA standards and a star rating for the additional work given.

– **Jake Hickey, Instant Waste Management**

All building types need to be eligible to acquire a Green Star rating certification. The new Design & As-Built tool needs to be robust enough to cater for all different building types and all different construction methods.

– **Oliver Grimaldi, Cundall**

Ideally all building types should be eligible.

– **Matt Fitzgerald, NDY**

Class 7 - car parks, storage
Class 10 - shed, structure

– **John Mabb, Gold Coast City Council**

Defiantly Refurbishment of existing buildings.
It should also be mandatory for all Hospitals to be Green Star rated through government legislation.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

The tricky thing here will be having the benchmark values to evaluate credits such as water and energy against for every building type. I would have thought this will take some time to gather this information.

– **Peta Earley, Norman Disney & Young**

Buildings whose building envelope thermal performance in Design or in As-Built achieve barely more than the minimum required in Section J should be ineligible for certification. Green Star must set minimum envelope thermal performance standards above those of the BCA Section J1 and J2. This is a way of forcing the hand of architects to take responsibility for their passive design decision-making at an early stage in the design process.

– **Michael Shaw, Connor Pincus Group**

Shell and Core makes little sense because the remaining systems are fundamental. It is certainly possible and likely to frustrate sustainability by not taking HVAC&R into consideration and forcing a suboptimal HVACR system.

I can't see the need for shell and core and do not want to give credit to those that do not deliver the final operating result in total.

– **Tim Edwards, Australian Refrigeration Association**

I believe that all types of buildings should be able to achieve a Green Star rating however the benchmarks that set eligibility, such as energy and water consumption, impact to environment such as pollution etc should be placed in a higher standard.

– **Mark Tickle, Grocon Group**

In theory it would be great to have a tool that has universal coverage, but given the variables from building types, complexity, usage patterns, green sites, brown sites, refurbishment and new, that may not be possible.

This possibly depends on the composition, structure / architecture of the new tool. If there is a library of 'modules' it will be possible to tailor the assessment to the building type and pattern of usage.

As mentioned on page 8 in relation to issues, the various ownership, management and tenant interests have a bearing on the above and issue challenges relating to design ratings vs as-built ratings.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

The aim should be that Green Star Design & As Built can be used to assess buildings of all sizes and complexities.

– **Stephen Choi, Viridis**

What about Data Centres?
Also wouldn't usually Restaurants fall under the Interiors tool. Historically restaurants are not stand alone structures and are included in a pre-existing base building envelope. Most commonly restaurants are treated as tenants with supplementary base building services in addition to those provided by the base building.

– **Haris Moraitis, BSE**

The new Green Star rating tool should be adaptable to all types of dwelling with the exception of residential. The residential sector has an alternate approach and not appropriate to adopt Green Star. In addition to this there is no market for it. The new green star tool need to be adaptable for sizes of building types, for example pre schools. Penetration into all markets is important for long term sustainability gains.

– **Samantha Andersom, Inhabitgroup**

There should be no limit on the building type. If a building owner wants to target a rating they should have the opportunity. The current tool doesn't work well for shell and core, and integrated fitout - more work needs to be done to simplify and clarify the approach.

– **ESD Team, Australian Engineering Consultancy**

Where 'inadequate' effort is taken in light of the project as a whole. no clear answer sorry

– **Evan Atkinson, The Buchan Group**

The tool should be flexible enough to improve the sustainability outcomes of any building or construction project. If it is "used" by people, if it consumes energy or water or if it uses materials in its construction, the tool should be able to rate it.
We need to avoid the scenario of not building in a sustainable way, just because you can't get a formal rating. It should no longer be an excuse.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Agree with the above drivers generally.!
I believe there will need to be a stronger shift towards regeneration / adaptation of existing stock in the future (as seen in the UK / Europe) , as opposed to the current focus on new build, to increase Australia's sustainability in the built form. Would like to see the new rating tool embrace this through the credits / weighting.

– **Natasha Prasaek, pdt Architects**

As a universal rating tools there should be the ability for all types of built-form to be assessed. If someone is prepared to pay to show commitment to a form of sustainability (Green Star) then they should have the opportunity.

– **Michael Kilmartin, Brookfield Multiplex**

All building types should be eligible, including individual dwellings.

– **Director, ESD Consultancy**

It is preferred that the rating tool cover most, if not all, buildings.

– **John Casey, Facility Management Association of Australia**

Something similar to Envirodevelopment rating tool, a holisitic approach to a class 1 developments (eg. used on Blackwood Park, Beyond and Lochiel Park in SA).

Given the simplification of the tool structure, it could easily be extended to buildings that until now have not warranted their own tool, rather than using the costly "Custom" tool.

– **Sebastian Carr, Sustainability House**

Residential works

– **Douglas Rennie, Vaughan Constructions**

Mixed use facilities should also be eligible for assessment under the new tool.

– **Paolo Bevilacqua, Australand**

single dwellings (too expensive to deliver), prisons (they will naturally perform well from an energy point of view) , restaurants (too energy intensive and active service driven)

– **Darren O'Dea, Inhabit**

Agree with the more than 50% idea. Previously consultants specifying upgrade works have been striving to state that total upgrade works constitutes less that 50% to avoid compliance with BCA section J. This will provide incentive to move the other way.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Should refurbishments be eligible for assessment under this rating tool?

Yes refurbishments should be eligible for assessment.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Yes

– **Owen Grace, Brookfield Multiplex**

Yes

– **Jake Hickey, Instant Waste Management**

There should be a rating tool specifically for New Build projects and a rating tool for Refurbishments / Extensions. The make up these building types are very different and the embodied carbon

– **Oliver Grimaldi, Cundall**

Yes

– **Matt Fitzgerald, NDY**

Only substantial

– **John Mabb, Gold Coast City Council**

Yes please

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Yes, they should be able to achieve a Green Star rating for undertaking such a refurbishment to improve their energy and water consumption. Some consideration by the technical advisor group is needed as to whether this can be achieved under this tool or under the Performance tool. It might that either can be used.

– **Peta Earley, Norman Disney & Young**

Yes

– **Michael Shaw, Connor Pincus Group**

I am not qualified. However it is very important to enable and in fact insist that refurbishment to include HVACR where the existing HVACR is suboptimal. It is highly likely that the vast majority of HVACR infrastructure will be replaced in the next 15 yrs and that this will deliver important emissions reduction so let's do what we need to do to encourage it.

I also feel that the ultimate rating of a building or a refurbishment should be comparable. I do not want to give credit to a

refurbishment that is not at least comparable to a reasonable standard for a new building. We risk undermining high rating new buildings because refurbishment gets a similar recognition.

– **Tim Edwards, Australian Refrigeration Association**

Yes. Consideration should be given to providing greater support and incentive

– **Mark Tickle, Grocon Group**

Ideally refurbishments should, but re-use / remodeling of existing buildings is a challenge. For example, recognition of the fact that re-use saves resources including embodied energy, does pose challenges to the allocation of credits, but demands special recognition.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Of course.

– **Stephen Choi, Viridis**

Yes to encourage the reuse of building shells.

– **Ross Davies, BlueScope**

Yes, but only where the rating is applicable and sufficient credits can be achieved to classify the building as a whole.

– **Nicki Parker, AECOM**

Yes

– **Haris Moraitis, BSE**

Yes

– **Samantha Andersom, Inhabitgroup**

Yes

– **ESD Team, Australian Engineering Consultancy**

Yes

– **Evan Atkinson, The Buchan Group**

Major refurbishments should definitely be eligible.
The tool should also fairly value a building refurbishment based on some further research in this area (i.e. demolishing an existing concrete structure and re-building it in "green" materials is not the same outcome and it should be valued in "green credits" accordingly).

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Yes

– **Natasha Prasaek, pdt Architects**

Yes

– **Sarah Reid, Norman Disney & Young**

Yes, varied criteria perhaps but definitely eligible. There will always be more existing buildings thus refurbishment opportunity and more rating ability!

– **Michael Kilmartin, Brookfield Multiplex**

Yes

– **Director, ESD Consultancy**

Yes, as the purpose of the tool is to rate the sustainability of a building as delivered, to ensure this standard is maintained, refurbishments that alter the outputs of the building should be included.

– **John Casey, Facility Management Association of Australia**

Yes, there should be encouragement to re-use existing building stock where practical to do so given the benefits to embodied energy, waste minimisation, etc.

– **Sebastian Carr, Sustainability House**

Only if they are of a significant size compared to the remaining building

– **Douglas Rennie, Vaughan Constructions**

Yes, if significant. Otherwise they should be captured under Performance.

– **Paolo Bevilacqua, Australand**

No...covered by NABERS

– **Darren O'Dea, Inhabit**

Yes

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: How should 'significant refurbishments' be defined?

No refurbishment limit is required because buildings with "good design elements" that undergo upgrades should be allowed to go through a rating – if the objective is to have a "new" green/ marketing / labelling outcome then yes set a limit. If the objective is also about good green buildings generally then the refurbishment degree is irrelevant.

Beyond that the market will in effect self regulate as it won't be worth the cost of facilitating a rating.

If a refurbishment limit is required it should be consistent with and aligned with the NCC/BCA rules.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Is there a need to define this further?

– **Owen Grace, Brookfield Multiplex**

not measured by volume or spend but on a case by case basis.

– **Jake Hickey, Instant Waste Management**

'

Significant refurbishment' is too generic a term to specify a building type. Whether a refurbishment building is assessed as a 'New Build' project or whether it is considered a 'Refurbishment' should be defined by what percentage of structure is new and what percentage is existing. E.g. if a building is 90% new structure and 10% existing, this could be classed as 'New Build'.

– **Oliver Grimaldi, Cundall**

The above criterion makes sense, however it could also be useful to provide some leeway and consider other projects on a case by case basis. Need to consider staged projects where a floor may become unusable at a time but at no time is 50% of the floor unusable. Need to be careful using terms like 50% of "the building". Does this mean floor area? Wall area? Roof area?

– **Matt Fitzgerald, NDY**

0.5

– **John Mabb, Gold Coast City Council**

Good question.
Significant refurbishment has to apply to at least 50% of the building.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

No comment

– **Peta Earley, Norman Disney & Young**

No comment

– **Michael Shaw, Connor Pincus Group**

Must include a high performance HVACR system - including all considerations. If the existing HVACR system meets the standard then fine but if not it must be replaced.

Please be aware that decommissioning of HVACR involves sending the plant to metal recovery where the unit is shredded. In Aus. the vast majority of such HVACR units are not degassed before being shredded.

– **Tim Edwards, Australian Refrigeration Association**

Benchmarks could be placed on by volume or area however credit description should be able to manage this process.

– **Mark Tickle, Grocon Group**

In some legislation a percentage of volume affected by the refurbishment has been used as a guide as has been a percentage of the floor area of the existing building. This is a difficult one!

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

It could be cost related?
Defining it based on buildings a percentage threshold of the building unable to be occupied under normal operating conditions excludes some refurbishments where occupants are in situ but refurbishment is significant.

– **Stephen Choi, Viridis**

Yes but not sure of the boundary of the definition

– **Ross Davies, BlueScope**

Something similar to the BCA '50% ruling'.

– **Nicki Parker, AECOM**

Minimum requirements (in the form of a guide) need to be developed to differentiate between significant and insignificant refurbishments addressing modifications to structure and materials as well as building services. Another option is to be defined through a building cost.

– **Haris Moraitis, BSE**

I think the proposed 50% is suitable for renovations.

– **Samantha Andersom, Inhabitgroup**

Should be triggered by BCA approval. Small refurbishments should be allowed but whole building will need to comply.

– **ESD Team, Australian Engineering Consultancy**

Where 'adequate' effort is taken in light of the project as a whole.

– **Evan Atkinson, The Buchan Group**

It should be at the discretion of the GSAP to make the call.

We need to avoid the scenario of not building in a sustainable way, just because you can't get a formal rating. It should no longer be an excuse.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Perhaps by agreed percentage of area affected by refurbishment works (i.e.: BCA / NCC's method for assessing extent of refurbishment to a building before upgrades to comply with AS1428.1 is required).

– **Natasha Prasaek, pdt Architects**

Significant refurbishments should include plant replacement, otherwise the Interiors tool is more suitable

– **Sarah Reid, Norman Disney & Young**

Perhaps as a percentage of change relating to floor area.

– **Michael Kilmartin, Brookfield Multiplex**

Using the BCA definition rules.

– **Director, ESD Consultancy**

Where major works is undertaken to HVAC, hydraulic and electrical systems, or other significant changes that may have a positive or negative impact on the sustainability of a building, possibly where works result in a potential increase or decrease in credits of no more than (set number here)

– **John Casey, Facility Management Association of Australia**

Where a building team feel a rating can be achieved (ie. there has been sufficient works to cover off enough points) they should be allowed to pursue a rating.

– **Sebastian Carr, Sustainability House**

At least 35% of the entire building

– **Douglas Rennie, Vaughan Constructions**

By cost as a percentage of the building value. Excluding particular specialist items - e.g. medical equipment in a healthcare facility.

– **Paolo Bevilacqua, Australand**

100% active services overhaul or 100% facade upgrades or both

– **Darren O'Dea, Inhabit**

Initially 50%

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Are the definitions of 'shell and core', 'integrated fitout' and 'conventional delivery' still appropriate today? If not, why not and what other definitions should be considered?

Yes they are still appropriate.

Note: Shell and core are not delivered as often. Buildings are built only when a substantial tenancy can be secured. Most buildings are built as base building and then tenancy fitouts. The typical method of delivery is D&C and tenancy fitouts are designed and constructed progressively with the construction of the base building. Base building definition is close to that used by NABERS.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

These are relevant definitions for today.

– **Owen Grace, Brookfield Multiplex**

They are ok

– **Jake Hickey, Instant Waste Management**

'Shell and Core' is still appropriate although these building types are becoming more rare. 'Integrated Fitout' is also appropriate although these too are becoming less popular with both base build and tenant clients.

– **Oliver Grimaldi, Cundall**

Yes although Shell and Core could also mean Base Building.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

'Shell & Core' is very hard to achieve in the sense that buildings are incomplete if certain aspects of it are not installed, i.e. sprinklers, ventilation, lighting.

A greater understanding and clarity of 'integrated fitout' should be introduced, most commercial office projects are being done this way and in order to assess them under the D&AB tools can be very complex.

– **Mark Tickle, Grocon Group**

My knowledge of contemporary practices is not sufficiently extensive to comment on this.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

They are IF they are well-explained. They are very much understood and referred to in commercial building, which is something the tool has to steer away from if it is to meet its objectives of really embracing other markets beyond offices.

– **Stephen Choi, Viridis**

Yes

– **Haris Moraitis, BSE**

Yes. The As-Built guidelines need improvement.

– **ESD Team, Australian Engineering Consultancy**

probably 'staged delivery' would be a more flexible approach, understanding sustainability as an ongoing challenge, not a tick box

– **Evan Atkinson, The Buchan Group**

Yes - They should be used more to distinguish credit criteria throughout the technical manual where relevant - especially as this tool aims to cover many different classes of building that have a variety of 'typical' delivery methods. We need to be careful to avoid the "Green Star Gaps".

For Example - If the same wall is being built as in a base building office or within an integrated fitout of an office or as an internal wall within an apartment or within a hospital, it should be treated and rewarded in exactly the same way.

The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers

Shell & Core - yes definitely for retail sector.!
Believe other definitions are relevant and appropriate although I do not typically use them in the course of my work.

– **Natasha Prasaek, pdt Architects**

Yes but they are evolving and depending on the project a number of approaches can be achieved depending on the developers needs.

– **Michael Kilmartin, Brookfield Multiplex**

They are still appropriate.

– **Director, ESD Consultancy**

These three assessment options have not been particularly clear from the outset, primarily due to lack of use/experience and unclear treatment in the existing rating tools. I have no feedback on preferred definitions other than to request that the delineation between each, and the subsequent impact to the overall rating awarded, be much more apparent under the new tool format.

– **Sebastian Carr, Sustainability House**

They are still appropriate

– **Douglas Rennie, Vaughan Constructions**

Shell and core is not common in industrial. Most industrials consist of a warehouse which is fitted out with electrical and lighting systems, fire systems, amenities and on office area which is fitted out as per conventional delivery. An appropriate definition should be established for what is considered the base case for each building type and this should result in particular credits being applicable or not.

– **Paolo Bevilacqua, Australand**

Though not always a completely accurate description they are generally accepted

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Considering the universal application of the rating tool, should Green Star – Design & As Built address the full scope of deliveries, from shell and cores to integrated fitouts? What are the benefits or drawbacks of this approach?

Yes, address the full scope of deliveries. Best practice in design potential should be rewarded/incentivised, regardless of the delivery method.

The drawbacks are:

- The potential complications of staged programmes and the blurring of scope that occurs at each main milestone, and the time delay in certification that normally occurs, i.e. the certification may not have been achieved for one stage before the next has commenced, (can be managed by design).
- Environmental impacts may be moved from one aspect of the delivery to another (e.g. base building shell and core moves impacts into the fitout), the approach would need to be cognisant of this.
- Complexity can be managed by different elements within credits, e.g. if your project is a school, the compliance path is X. If it is a core and shell space, compliance path is Y. Refer to LEED tool for method to achieve this flexibility.

The benefits are:

- One tool covers all.
- Projects should be able to decide which delivery method best suits the particular circumstance and this decision should be independent of Green Star eligibility.
- The client has the ability to understand the rating results at each milestone.

Note: If there is vacant space and limited opportunity to include an integrated fit out (as is going to be the commercial reality from time to time) what about including a credit for specifying an interiors rating as part of the building rules for all new tenants – then you effectively carry the "green" behaviour from tenant to tenant.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The concern in utilizing one tool for all these scenarios is that it will have some complexity in delineating and apportioning who does what work (tenant vs owner etc.)

– **Owen Grace, Brookfield Multiplex**

cover the whole spectrum but take each type of scopes strengths and weaknesses into consideration.

– **Jake Hickey, Instant Waste Management**

These need to be kept as separate and clear assessment methods. Design and As Built should address whole building projects, and shell and core and integrated fitout should address their related building project types. Though, each of these assessment types should be coherent and align well with the other.

– **Oliver Grimaldi, Cundall**

Yes for a universal approach you should be able to use for any of the deliveries otherwise are we swapping building typology manuals for Delivery manuals - sort of goes against the universal approach.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Green Star Design/As Built should reward best practice in design potential, no matter what the delivery method.

– **Michael Shaw, Connor Pincus Group**

I resist the idea of a shell and core that impedes subsequent sustainability achievements. I am suspicious that the shell and core rating is grossly incomplete and will be gamed.

– **Tim Edwards, Australian Refrigeration Association**

It is possible that a partially delivered project could cause uncertainty particularly if the balance of the work ie, fitout is not subject to the application of Green Star Design tool discipline. Therefore a design rating would be useful in this instance, if a suitably accredited fitout cannot be guaranteed, because responsibility might be passed on to other parties.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Yes - the whole building should be addressed, and whilst the drawback of more time and effort is required, the more robust and effective an outcome it will be.

– **Stephen Choi, Viridis**

Yes

– **Haris Moraitis, BSE**

I think its needs to be able to assess both, forcing people down the path of integrated fitted will restrict some projects for targeting a rating, or add to waste, as tenants may come in and remove comments they perceive as unsuitable. Careful consideration of how this "waste" should be addressed on all projects is critical.

– **Samantha Andersom, Inhabitgroup**

Yes

– **ESD Team, Australian Engineering Consultancy**

ignorant of whole tenant and 'customer' practices

– **Evan Atkinson, The Buchan Group**

I believe they should address all types of delivery scope & methods although are concerned that this might make the tool less user friendly / more difficult and cumbersome to use.

– **Natasha Prasaek, pdt Architects**

The ability to target different deliveries would be beneficial as long as one does not compromise the other.

– **Michael Kilmartin, Brookfield Multiplex**

Yes. The drawbacks are the potential complications of staged programmes and the blurring of scope that occurs at each main milestone, and the time delay in certification that normally occurs (the certification may not have been achieved for one stage before the next has commenced). The benefits are that the client has the ability to understand the rating results at each milestone.

– **Director, ESD Consultancy**

It should address the full scope of deliveries, as:
- this will ensure that the suite of GBCA rating tools covers the entire lifecycle of a building (Design, Construction & Operation).
- A lower than expected operational performance outcome could potentially be created by the design and layout of fitouts not covered by the tool.

– **John Casey, Facility Management Association of Australia**

The benefits appear to be a single, simple tool for all assessments. The major drawback however is that when comparing buildings with the same star rating, it is possible that they were delivered as very different projects and therefore the real sustainability outcomes are vastly different.

– **Sebastian Carr, Sustainability House**

No. Shell and core has the greatest long term environmental impact

– **Douglas Rennie, Vaughan Constructions**

Shell and core is not very common apart from perhaps retail. This can be tackled by making certain credits applicable / not applicable.

– **Paolo Bevilacqua, Australand**

Yes, it would be good to see the requirements drop off significantly if a project follows the full scope of deliverables

– **Darren O'Dea, Inhabit**

Q: Do you think there should be a size limit for the buildings that can be assessed by Green Star – Design & As Built?

There should be no specified or effective size limit: Although there are no elements within the tool that are specifically affected by size, there is already a practical size limit – projects under a certain value can't afford the costs of certification, and many credits become unfeasible. The assessment process would benefit from the reduction of these constraints – in particular public buildings (e.g. child care centre, community buildings, schools) would like to be rated, but simply can't afford it.

The tool and certification process should be redesigned so that it is more easily adopted by smaller projects. A single storey/limited area building could not be compared effectively with a large scale high-rise building. So the size issue creates added benchmarking

complexity. It would make sense to align building ratings with building Classes defined by the BCA as well as with the size where differentiated by the BCA (e.g. heights below or above 25m).

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

No

– **Owen Grace, Brookfield Multiplex**

No

– **Jake Hickey, Instant Waste Management**

There should not be a size limit, though very large developments tend to contain a variety of space types. This often means there will be different occupation profiles, different mechanical systems and different constructions all in one building. Large projects (approx. 100,000m2 and over) may need to be assessed on a case-by-case basis.

– **Oliver Grimaldi, Cundall**

No

– **Matt Fitzgerald, NDY**

No.

– **John Mabb, Gold Coast City Council**

No, big or small the building will impact the environment so shouldn't matter what size the building is considering building of all shapes and sizes is one of the objectives.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

No. The tool and certification process should be redesigned so that it is more easily adopted by smaller projects.

– **Michael Shaw, Connor Pincus Group**

I expect there is a minimum size but not a maximum size. Obviously there are many small residential houses that become individually marginal for green star but can be categorised and treated in aggregate.

– **Tim Edwards, Australian Refrigeration Association**

No

– **Mark Tickle, Grocon Group**

Don't have a view on this. I guess the costs, impacts and potential benefits of the project could influence this.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

No.

– **Stephen Choi, Viridis**

No but if a 'Certified Rating' is developed there should be an upper limit - e.g. Design this version of the tool for smaller developments.

– **Ross Davies, BlueScope**

No size limit.

– **Nicki Parker, AECOM**

No

– **Haris Moraitis, BSE**

Sustainable outcomes need be delivered on small and large projects. As such we need to ensure the new tool has adequate flexibility to deal with building of different sizes.

– **Samantha Andersom, Inhabitgroup**

No

– **ESD Team, Australian Engineering Consultancy**

No

– **Evan Atkinson, The Buchan Group**

No - the cost will always limit size.

The tool should be flexible enough to improve the sustainability outcomes of any building or construction project. If it is "used" by people, if it consumes energy or water or if it uses materials in its construction, the tool should be able to rate it.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

No - as long a weighting / adjustment process can be applied to account for smaller project sizes. Can this also be applied to the fee structure for the GBCA assessment to ensure that Green Star is accessible to all project types and sizes.

– **Natasha Prasaek, pdt Architects**

No size limit - smaller project applications self-select due to relative high cost of submission compilation.

– **Sarah Reid, Norman Disney & Young**

Only if we start to limit the size of buildings we let people build!

– **Michael Kilmartin, Brookfield Multiplex**

No

– **Director, ESD Consultancy**

No, the principles underpinning how a building should be designed and constructed should apply to all building sizes. However, credit assessment criteria may need to vary depending on size and potential use.

– **John Casey, Facility Management Association of Australia**

No, however the project registration costs should be proportional to the size of the project.

– **Sebastian Carr, Sustainability House**

No

– **Douglas Rennie, Vaughan Constructions**

Are you referring to a maximum size? If so no there should not be a limit. If the question is in reference to a minimum the no also however there should be a simpler process for smaller projects to encourage broader application of the tool and certification.

– **Paolo Bevilacqua, Australand**

No, driven by the users perceived value of Green Star

– **Darren O'Dea, Inhabit**

No

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Please provide any additional feedback on the proposed scope of assessment here

GBCA should align scope, fees and time scales with BCA approvals - this will see a significant uptake in certification.

The third party assessment process has been problematical since its inception and is a significant barrier to expanded uptake.

The tool should have no restrictions to projects which have areas of multiple class types, e.g. office + education + retail.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Ensuring certain assets have certain issues that are more important is a key factor.

– **Owen Grace, Brookfield Multiplex**

Health care might have unique sustainable needs that are not needed in other building types

– **John Mabb, Gold Coast City Council**

Need to consider Mixed Use developments - how are they assessed under the universal approach, will it be easier. Will size of each building class no longer matter making mixed use easier to assess?

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

It is critical that the step from "conventional" to "integrated" not jeopardise the performance of the HVACR system.
It is critical that splits incentives by addressed for HVACR.
It is important that HVACR rating consider all of the following: design, commissioning, maintenance and decommissioning.

– **Tim Edwards, Australian Refrigeration Association**

GBCA needs to align scope, fees and timescales with BCA approvals - this will see a significant uptake in certification. The third party assessment process has been problematical since its inception and is a significant barrier.

– **Director, ESD Consultancy**

Employing independent certifiers to quickly assess credits. The GBCA should work to improving tools, improving the process, approving any complicated credits and working with regulatory authorities.

– **Douglas Rennie, Vaughan Constructions**

The universal approach sounds great in theory however realistically different requirements will be needed for a lot of credits to address different building types. It is not clear to me at this stage whether taking the universal approach will actually make it any simpler on a project by project basis.
More thought needs to be given to assessment of projects developed/built by the same organisation with very similar design brief/specification. For example, industrial properties do not change much and therefore assessment of credits like energy, daylight, thermal comfort, and others can really be based on a deemed to satisfy/attributes based approach rather than require modelling for each project. I would welcome a more detailed discussion on this area.

– **Paolo Bevilacqua,Australand**

Q: What other opportunities for alignment of the rating tools exist? Do you have any suggestions for how alignment can be increased to ensure better and more consistent project and sustainability outcomes?

International/regional alignment.

Align with the other ESD related targets or processes such as NABERS, CBD and BCA Section J.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

When the new tool is finished it needs to be marketed as the leading method of delivery, this means comparing it with the other systems used for accreditation across the world.

– **Jake Hickey, Instant Waste Management**

More points should be available in each of the tools that encourage the application of another rating tool. E.g. a Design and As-Built should be rewarded for being located in a Green Star Communities rated development, a Green Star Interiors should be rewarded for being situated in a Green Star Design and As-Built building. Furthermore, a Green Star Communities project could be rewarded for registering the buildings within the development for the Green Star Design and As-Built tool.

– **Oliver Grimaldi, Cundall**

Buildings are not single objects in the landscape, they form part of the city, they form part of the community, the inclusion of urban public space credits could become an opportunity for a greater impact on sustainable environments. A project could consider the greater community as part of innovation points.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Please ensure that all rating tools pay appropriate attention to the impact of HVACR. I have a vague recall that interiors did not do it justice.

Please be aware of the high value of cogeneration and trigeneration

– **Tim Edwards, Australian Refrigeration Association**

Objectives sound worthwhile, but my working knowledge is not sufficiently detailed to provide sensible comment.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

I feel that the gap between shell and core and fit-out is already well-covered, and is part of good design and project delivery to be dealt with by project teams, including clients.
The transition from design / build to performance is the key factor. We have minimal data on real performance in Australia, and this is a large market gap for the GBCA.

– **Stephen Choi, Viridis**

There is an opportunity to align with ISCA so future versions of the IS tool also reflect this alignment

– **Ross Davies, BlueScope**

Encourage credits to be transferred between tools through large to small scale, design to operation, e.g. credits that are applicable to communities scale can also be covered at a building level.

– **Nicki Parker, AECOM**

The challenge will be on the type and timing of documentation easily transferred and used in the submissions of other tools without compromising the success of these submissions.

– **Haris Moraitis, BSE**

The new design and as built tool should align with other mandated programs, such as NABERS. Synchronised transition between rating tools is critical for the success of Green Star moving forward. If the process is too difficult or there are too many hurdles, uptake of the system will be low.

– **Samantha Andersom, Inhabitgroup**

Make sure that credits are consistent where possible between the tools. Pre-award should be provided for certain credits - ie those achieved under GS Communities for projects within that boundary.

– **ESD Team, Australian Engineering Consultancy**

Each earlier tool should include initiatives that will assist in achieving the next tool. And where possible, credits should be automatically awarded as you progress to the next tool.
Perhaps the GBCA could use the GSAP to self-assess and certify that the "conventional" and typically "older" credits have been achieved for a project.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

No other opportunities to add. Agree with making alignment more seamless but need to ensure this does not become a 'negative' / drawback for those that are only seeking Design & As Built assessment otherwise this may inadvertently curtail the drive towards increased sustainability.

– **Natasha Prasaek, pdt Architects**

Please see previous comments regarding operational considerations.

– **John Casey, Facility Management Association of Australia**

Recognition of Green Star ratings under NCC energy efficiency & future sustainability objectives would be a welcome alignment.

– **Sebastian Carr, Sustainability House**

Getting the green system references in the BCA or written into local council policy

– **Douglas Rennie, Vaughan Constructions**

Design check only, with formal certification for As Built only. A number of credits such as tuning, indoor environment quality, energy, water, could be awarded where an applicant agrees to "commitment agreement" for a performance rating. As a suggestion, to achieve the points using this approach would require an independent design review by a relevant person which could be accredited by the GBCA.
Would also be nice to see more alignment of assessment process where a base building achieves a green star rating and then fitout is attempting an interiors rating.

– **Paolo Bevilacqua, Australand**

Q: What other challenges or frustrations that project teams face when progressing their project through the different rating tools exist? How could these challenges or frustrations be minimise through Green Star – Design & As Built?

Technical disagreements in ratings, i.e. expert third-party adjudication process for technical disagreements?

Coordinating credit requirements for mixed use buildings, e.g. bike parking – different requirements for each building type - Streamlined into one central calculation.

The tool should rate the expected project outcomes, not rate the documentation provided by the project team. An accredited professional working with the client and project team should assess and rate the project, not a third party assessor. BREEAM, NABERS and BCA are good examples of robust rating of buildings using private accredited professionals and robust auditing processes, at significantly lower time and cost impacts to Green Star.

A far more practical understanding of how buildings are actually commissioned and managed which feeds back into clarity around the process for design, delivery and required documentation.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

There are a few key simplifications that could reduce overall documentation substantially

- Drop the requirement for Issued for Construction/Tender for Design ratings, as well as reducing compliance materials to checklists for Design ratings
- Elaborate on or remove certain clauses such as "suitably qualified" professionals
- Reduce the need to have detailed modelling reports.
- Provide rate based calculations to allow non-specialist staff to calculation compliance (similar to Mat-1 where X m2 NLA needs y m2 waste storage), rather than needing professionals to calculate this

– **Owen Grace, Brookfield Multiplex**

Double working on some paperwork elements - allow single submissions of audits and QA documents to be used to justify multiple credits.

– **Jake Hickey, Instant Waste Management**

There are many. Chris Nunn from NDY Sydney can provide an extensive list of suggestions to mitigate these. At the moment many of these are fundamentals of the tool which needs to be fixed before larger goals like aligning tools etc can be made to work. One of the single largest problems is a lack of clear requirements on projects and a lack of clear templates. On most projects the person responsible for the evidence should be able to be given a short paragraph stating the requirement, along with a template to complete, and they should be able to fill this in with very minimal effort e.g. 5 mins or so, even if they have never heard of Green Star before. Provided the template is completed correctly the project team should be 99% certain they will receive the associated points.

– **Matt Fitzgerald, NDY**

Rulings! They need to be integrated back into each credit as opposed to an attachment on the side. This will involve GBCA releasing each credit as a different issue no for each change or clarification. Don't need to release the entire manual but if we go with a universal approach, updating individual credits could be easy.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Part of the new energy assessment process for Building Envelope thermal performance could relate to the Section J process (deemed-to-satisfy or JV3 modelling) as this is a mandatory process for all building designs.

– **Michael Shaw, Connor Pincus Group**

My experience is that HVACR receives insufficient attention.

There are a number of issues in this fast changing industry - standards, regulations, licensing etc.

There is a shortage of well trained HVACR engineers in Aus.

– **Tim Edwards, Australian Refrigeration Association**

Greater consistency is the assessment of credits

– **Mark Tickle, Grocon Group**

My working knowledge is not sufficiently detailed to provide sensible comment.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Benchmarks should be based on evidence, rather than just a standard percentage (daylight, bicycle parking) with links to the resulting numbers that need to be achieved.
There is currently too much focus on the process and documentation, rather than initiatives and outcomes.
Inconsistency of assessments.
Achieving the design intent of the credit rather than following a prescriptive checklist approach.
Transparency behind the calculators.
Comparisons to a reference building, but there is ambiguity about that reference building. Not comparing like for like. Restrictions on how a reference building can be represented, currently substantial scope to skew the reference model in the project team's favour.

– **Nicki Parker, AECOM**

The issue is cultural and that the industry considers both transitions as two separate projects with two separate costs. That wouldn't change but the industry needs to be educated on the benefits of a holistic approach and have procedures in place from concept design for a successful as-built and/or performance submission.

– **Haris Moraitis, BSE**

Given the design and as built tool is to be for all building types, it is my understanding that it should be able to applied easily over mixed use developments. As such there need to be clear and synchronous guidelines for how to apply credit to all areas of a development, ensuring this approach does not disadvantage developments in credit where "90% of the development is to achieve...."

– **Samantha Andersom, Inhabitgroup**

Restricted lines of communication with GBCA during the Assessment process. The significant turnaround time for a response. The limited authority of the case manager to provide a response to the team. Too much focus on documentation rather than design. Having to wait for a long time to receive a rating. Some credits should be assessed early with no additional cost to provide clarify to the team on credits achieved. Have a GSAP that can sign off on certain credits during the assessment. Make Round 2 a more open process where there is more engagement with the assessors. Make the Assessor part of the process from day one.

– **ESD Team, Australian Engineering Consultancy**

Credit benchmarks and the standards referred to should remain consistent across tools unless there is a significant reason to change them.
The technical skill of the case manager can also impact the way a project is certified and the extent of the works involved.
Design teams like to make the right decision at the right time. Too often the current process of certification gets in the way of making the outcome sustainable. This needs to be considered in the new tool.
Additional feedback has also been provided to Rebecca Breuer.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

- The amount of documentation that needs to be produced at such a late stage of the documentation process - adds significant pressure to the team.!
-The complication of a design that changes late in the GS process (during documentation). Then a decision m (incomplete)

– **Natasha Prasaek, pdt Architects**

See previous comments. The tool should rate the expected project outcomes, not rate the documentation provided by the project team. An accredited professional working with the client and project team should assess and rate the project, not a third party assessor. As per previous comments, BREEAM, NABERS and BCA are good examples of robust rating of buildings using private accredited professionals and robust auditing processes, at significantly lower time and cost impacts to Green Star.

– **Director, ESD Consultancy**

Please see previous comments regarding operational considerations.

– **John Casey, Facility Management Association of Australia**

Different approaches to energy consumption credits between Office, Multi-unit residential, Health, Education, etc. A single approach to energy modeling, developed in conjunction with the administrators of the NABERS and JV3 modeling protocols, would be welcomed.

– **Sebastian Carr, Sustainability House**

Consistency should be a focus - by using a sliding scale approach between tools

– **Douglas Rennie, Vaughan Constructions**

Refer above.
Either more credits need to be automatically awarded where a project has achieved a design rating and is also undertaking an as-built rating. Alternatively, if both ratings are kept, projects that are registered for both should only have to do very little to achieve the design rating. The design rating becomes almost a commitment to particular credits/performance which needs to be proven at the as built stage.
The certification fees should also be revisited as a project aiming for more than 1 rating should not have the pay the same fee each time.

– **Paolo Bevilacqua, Australand**

Q: Do you think that there is still a need to offer some form of assessment and certification for building design? Why, why not?

Yes.

Assessment of the design encourages the integration of green building solutions into a project at the very earliest stages; otherwise bolt-on solutions become more common. It is well established that the most effective time to influence changed performance is in feasibility and concept design; the design rating is a significant waypoint / milestone.

The design parameter is the first step in building construction – without requiring recognition at this level you risk taking away the 'stretch targets'.

It is the design elements that offer the most by way of unlimited potential performance improvements.
Design assessment is also useful for marketing purposes.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Certain areas of building design need to be assessed early, such as energy performance, but others do not. Reducing the need to test certain credits can save projects time, and hence reduce certification costs, with chief responsibility of certifying the building being placed on As-Built.

– **Owen Grace, Brookfield Multiplex**

Ongoing communication with the design team & their Clients will allow for a wider adoption of the green star system.

allowing (draft or indicative) points to be credited at design stage will give the investment side of the property market a tool with which to measure their potential to let or sell the building at a later date.

– **Jake Hickey, Instant Waste Management**

3 Star and below suggests an industry 'norm' building or below. A 3 Star would receive a Green Star certification without pushing the design very hard sustainability-wise. A building can then be rewarded for not doing much. This will cheapen the brand and Green Star doesn't remain the tool seen to be pushing the industry norm.

– **Oliver Grimaldi, Cundall**

Certification should be limited to as-built only. An interim assessment of design documentation could be useful to provide confidence to the design team going into construction, but there should not be a marketable certificate based on design only. This would force specification of as-built ratings in client briefs.

– **Matt Fitzgerald, NDY**

While it is important to consider the sustainable features of a building at all stages of development (including cost), there is only a real environmental benefit if the buildings performance is better than the average building stock.

– **John Mabb, Gold Coast City Council**

As previously commented on, achieving a Design rating should then streamline the As-built submission and hopefully increase the number of buildings going for As-Built submissions. If a building cannot be certified during the design phase then this would not assist the as-built submission and does not give a project team any certainty on whether design decisions will be compliant.

Therefore a design rating should really only be in place to assist a project team achieve their As-built rating. If GBCA really want to eliminate design ratings, then change it so you can only register for an As-built rating, but project teams could be given the option if they want to register for an As-built rating with or without a design rating.

– **Peta Earley, Norman Disney & Young**

There needs to be a green star design stage tool to force the hand of the project team to incorporate the good design practice that is necessary to achieve good outcomes in operation, which is the actual end game - real environmental and occupant health benefits in real operating buildings.

– **Michael Shaw, Connor Pincus Group**

There is obviously critical linkage between building design and HVACR. I see little need to recognise design that is not delivered in total as promised and I worry about the lack of integrated design and commissioning.

I suspect this means the focus is on the outcome rather than the promise of a design.

– **Tim Edwards, Australian Refrigeration Association**

Innovation credits could be assessed under this method, given the nature of them it may be beneficial to provide support and assistance in the proposed design solutions

– **Mark Tickle, Grocon Group**

If it is necessary to wait for a period of operational use before receiving certification this could cause angst from building owners / developers who might want to sell the building and use the rating as a point of sale.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Maybe the tool could just be called Green Star (which assesses finished projects), and stop being referred to as Design & As-Built! One rating should cover both areas, i.e. As Built.

– **Stephen Choi, Viridis**

There needs to be a vehicle for the owner or developer to promote the building to potential owners/renters while in the design phase.

We do not support the introduction of 1-3 star ratings a 'Certified' level would be much more appropriate. Who would want a 1 star rating?

– **Ross Davies, BlueScope**

We believe that having a design assessment is a good milestone and provides certainty that the design team is on the right track. We think this could be conveyed in a more commitment type process, with a robust assessment at the design stage with no rating allocated. Being able to go for a design rating without having to do an As Built rating can send the wrong message and adds confusion to people who are not educated on the Green Star process.

– **Nicki Parker, AECOM**

I believe that the design rating should be obsolete as offer no real value anymore in the industry. It was a great tool to drive the industry back in 2002 but over ten years now, we need to be ahead of our time. The LEED model has been successful in pre-awarding design credits in an as-built submission but the whole kudos and success of the project falls within the final and official submission of an as-built rating. I am aware of the two years deadline for design ratings but still would not resolve industry's perceptions that there are buildings in Australia awarded design ratings but not built or even performed like their design ratings. GBCA needs to continuously transform the industry!

– **Haris Moraitis, BSE**

Yes. Some sort of review should be undertaken at design stage to ensure the project is on track to achieve performance and a preliminary review to ensure the paper work is in the right direction. I think this is particularly important for projects where an alternate compliance strategy is being used or innovation credits are being pursued.

– **Samantha Andersom, Inhabitgroup**

Our team was split on this issue.

On the one hand we thought assessment yes but not for certification. Design teams need to know they are on track. A design rating should not be awarded without an as-built rating - combine into one rating. The as-built component should include 12 months of performance. Refer to LEED and Living Building Challenge. Developers are taking advantage of the marketing opportunities associated with a Design rating.

On the other hand some had the view that if you engage a competent design team then you should get the correct outcome - ie just focus on the As-Built rating.

– **ESD Team, Australian Engineering Consultancy**

Yes for marketing purposes

– **Evan Atkinson, The Buchan Group**

The industry should provide both options. Let the market value each alternative accordingly.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Yes - I think this is a necessary step in achieving a sustainable building form. Without this design assessment step there would be increased risk experienced at the 'As Built' certification stage. It is easier to integrate sustainability earlier rather than later in a project. The process of designing and documenting with the ability to seek assessment / certification at this stage should also bottom out any significant shortcomings within the project design prior to it reaching site and enhance the final built form. It is also easier to increase a project's level of innovation at the design stage. and to test theories prior to constructing. Where the project delivery method is other than 'Traditional', the 'Design' assessment allows the client to carry a certain level of risk in establishing the design parameters that will be later carried forward at the 'As Built' stage, where the risk is typically borne by the contractor.

– **Natasha Prasaek, pdt Architects**

Yes - there is a need. Key benefit of Green Star is to attract tenants, so some form of design stage rating is essential

– **Sarah Reid, Norman Disney & Young**

Yes - because clients want to market the rating ahead of construction completion. Also some clients want to just get the design rated and the on-site administration and as-built documentation costs are seen as prohibitive to many. Note there is an opportunity here to change this and encourage rating of construction if the process is simplified and costs reduced.

– **Director, ESD Consultancy**

Yes, assessment and certification for building design would help to set a realistic standard/benchmark for comparison.
- When in the design phase if a building consistently achieves a significantly higher number of credits than in the As-Built stage, it is possible that the credits the ratings are based on have unrealistic outcomes.

- The purpose is to identify Australian excellence and world leading best practice, providing credits to practices that cannot be practically implemented undermines this desired outcome.

– **John Casey, Facility Management Association of Australia**

Yes, in order to show the proof of concept of a design prior to full project funding or a tenderer being awarded the construction contract.

– **Sebastian Carr, Sustainability House**

Definitely there needs to be some form of assessment. However, it should be a more progressive process similar to having a building surveyor review then certify documentation for issue of a building permit. Some credits should be easy to assess and approve quickly. Others need to be checked in detail. If the process was more progressive then project teams can review with some certainty the number of points and make adjustments as necessary prior to lodging the full submission.

– **Douglas Rennie, Vaughan Constructions**

I have commented on this in some previous questions.
Basically, I support the commitment process for design ratings where the project is registered for an as-built rating however this also needs to be reflected in the certification fee structure. A similar approach could also be extended to as built ratings where the applicant commits to a Performance rating.

– **Paolo Bevilacqua, Australand**

Yes, the design drives expected performance and responsibility. However, this can be limited to undertaking a simplified approach for many elements through tools and projects planning and responsibility schedules. Local councils are now starting to mandate 5 stars within the tender stage. This is too high as a design guideline as it represents approximately 30-40% above BCA requirements and is too costly. Perhaps by allowing 1 to 3 stars, councils could use these as opposed to lofty design guideline aspirations that will struggle to make it to the built stage.

– **Darren O'Dea, Inhabit**

Unfortunately in some cases the design phase a place where a lot of options are specified but ultimately not delivered in the As built phase. For this reason I think it is becoming increasingly irrelevant.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Name	**Organisation**	**Green Star Ratings should be awarded without a requirement for subsequent A Built rating. The current time limit of two years on the validity of Green Star ratings is a sufficient measure to address the issue of lack of delivery?**	**Green Star Design ratings should be awarded only upon the condition of the future achievement of an As Built rating**	**There should be no Green Star – Design rating. It should be replaced with a design stage pre-certification to assess whether the project is on course to achieve and an As-Built rating. This pre-certification should not allow project teams to market their project as Green Star – Design certified**	**There should be no Green Star assessment at the design stage.**
Phil Wilkinson	Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)	Yes	No	No	No
Owen Grace	Brookfield Multiplex	No	No	No	No
Jake Hickey	Instant Waste Management	Off	Yes	Off	Off
Oliver Grimaldi	Cundall	No	No	Yes	No
Matt Fitzgerald	NDY	No	No	Yes	No
John Mabb	Gold Coast City Council	Yes	Yes	No	No
Anissa Farrell	Conrad Gargett Riddel Architecture	No	No	Yes	No
Peta Earley	Norman Disney & Young	No	Yes	No	No
Michael Shaw	Connor Pincus Group	No	Yes	Yes	No
Tim Edwards	Australian Refrigeration Association	No	Yes	Yes	Yes

Mark Tickle	Grocon Group	No	No	Yes	Yes
Bill Lambie	Department of Planning, Transport and Infrastructure	Yes	Off	No	No
Stephen Choi	Viridis	No	Yes	Yes	No
Ross Davies	BlueScope	No	Yes	No	No
Nicki Parker	AECOM	No	Yes	Yes	No
Haris Moraitis	BSE	No	Yes	Yes	No
Samantha Andersom	Inhabitgroup	No	Yes	No	No
ESD Team	Australian Engineering Consultancy	No	Yes	Yes	No
Evan Atkinson	The Buchan Group	No	Yes	No	No
Sustainability Team	Wood & Grieve Engineers	Yes	No	No	No
Natasha Prasaek	pdt Architects	Yes	Yes	No	No
Sarah Reid	Norman Disney & Young	Off	Yes	Yes	Off
Michael Kilmartin	Brookfield Multiplex	No	Yes	No	No
Director	ESD Consultancy	Yes	No	No	No
John Casey	Facility Management Association of Australia	Off	Off	Off	Off
Sebastian Carr	Sustainability House	No	Yes	No	No
Douglas Rennie	Vaughan Constructions	Off	Yes	Off	Off
Paolo Bevilacqua	Australand	No	Yes	Yes	No

Darren O'Dea	Inhabit	Yes	No	No	No
Kevin Moore	Focus Energy Solutions and Airconomix	No	Yes	Yes	No
	Yes	7	19	13	2
	No	19	9	14	24
	Off	4	2	3	4

Q: Please provide further comments or feedback to support your view on the future of design ratings

Some buildings are designed to a high level green star ratings for marketing purposes, yet do not follow up on those design obligations. Such false representation of buildings should not be allowed as it contravenes the intended purpose. If the building design does not translate into actual delivery of an improved outcome what is the point of just having design process – the process needs to deal with those in the industry seeking to exploit the mechanism.

Buildings should not be allowed to be advertised as Green Star Design when the As Built results were not proven within a limited time (2-5 years) and lack of delivery should be made public.

As Built rating should be encouraged to follow the design rating, but do not necessary need to achieve the same rating level (i.e. 6 star design, yet 4 or 5 as built could be allowed and, as noted above, buildings should not be allowed to advertise the Green Star design rating when the As-Built rating has, or should have been proven.

Similar to NABERS Commitment Agreement, marketing should be allowed, but not certification claims.

Could make it a requirement of Green Star that, if marketed as Green Star certified (whether Design or As-Built – or a single certification that covers all stages) then the lease documents need to include same. Then the market would ensure ongoing certification).

'Design' and 'As-Built' are not required terms, they could be replaced by 'pre-certified' and 'certified'.

Given the different participants in the delivery of a new building it is worth recognising excellence at each stage in a way that encourages the next stage to carry on (or exceed) the same standard.

The design stage rating is very important. It is fundamental that at this early stage it can be realised as to what level of As Built rating would be possible or optimal.

Removing Green Star design ratings is likely to significantly reduce the use of Green Star for rating buildings and as a driver for change. Whilst the design rating may have been open to some misuse in the past, on balance it has served as a design driver for the significant majority of projects.

While maintaining either a design stage pre-certification or a design certification, As Built ratings should be better incentivised by the GBCA. Other international tools have very successfully, in terms of market penetration and commercial viability (client AND building council), used only the As-Built version of their tools for decades. A building that is 'theoretically' sustainable is no longer good enough in the current climate, and sustainability must be benchmarked at a higher level and demonstrated as an actual achievement and not just a label. So, whilst maintaining emphasis on the design achievements, to maintain credibility Green Star

must ensure it is a rigorous and credible as-built tool.

Given the clients need to have clarity around design versus performance outcomes GBC would do well to clearly articulate where their focus is and how that integrates with NABERS (given its profile in performance outcomes). Running parallel paths will just add cost and lead to client frustration over time.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Design ratings should remain as a way to market projects early, and to test certain sustainability objectives (such as energy performance). It should be a much quicker exercise than currently. Instead of poring over specifications and drawings, it should state the general ambitions, to be tested later at an As-Built stage. Many credits only need to be check listed and signed, such as "I promise to use zero-ODP insulation" etc, rather than having to adjust documentation extensively. How a project decides to force contractors to comply should be up to them.

– **Owen Grace, Brookfield Multiplex**

I agree with the 3rd comment: 'There should be no Green Star - Design rating. It should be replaced with a design stage pre-certification to assess whether the project is on course to achieve an As-Built rating.'

A Design rating encourages clients and building owners to market their building as Green Star rated and not necessarily follow through with this through the construction phase of the project.

– **Oliver Grimaldi, Cundall**

Rating at the design stage facilitates investment and quantifies cost of sustainable features but it only makes a difference if it is built and performs to those same ratings.

– **John Mabb, Gold Coast City Council**

While maintaining either a design stage pre-certification or a design certification, I still believe As Built ratings should be better incentivised by the GBCA.

– **Michael Shaw, Connor Pincus Group**

Designers and developers will make their claims and can support them as they like but they should not be certified until the facts are known.

– **Tim Edwards, Australian Refrigeration Association**

As already alluded, there are concerns especially where issues of tenure such as owner vs developer vs tenant might give rise to different requirements. I'm not sure what GBCA has in mind here and therefore my responses above appear inconsistent or uncertain.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

There is mixed views on having a Green Star - Design rating. There is still benefit in having a design rating but that it should simply have a time limit in that if you don't get an as-built rating within the required period then you no longer have a Green Star building. Not being able to market the achievement of Green Star attributes until after the as-built stage is completed could create a financial disadvantage to projects looking to secure anchor tenants and attract prospective tenants.

– **Nicki Parker, AECOM**

I believe that the design rating should be obsolete as offer no real value anymore in the industry. It was a great tool to drive the industry back in 2002 but over ten years now, we need to be ahead of our time. The LEED model has been successful in pre-awarding design credits in an as-built submission but the whole kudos and success of the project falls within the final and official submission of an as-built rating. I am aware of the two years deadline for design ratings but still would not resolve industry's perceptions that there are buildings in Australia awarded design ratings but not built or even performed like their design ratings. GBCA needs to continuously transform the industry!

– **Haris Moraitis, BSE**

If the design rating becomes a pre-requisite for the As built rating, the process of the moving from one to the other must be simple and not create additional work. Furthermore, the cost of this must be rationalised. Recommend that that online system is significantly tired and tested prior to enforcing mandatory design and as built rating for certification

– **Samantha Andersom, Inhabitgroup**

Developers want some level of design rating to market their buildings - they need some marketing opportunities.

– **ESD Team, Australian Engineering Consultancy**

commerce is leaning to live off communications. If sustainability is to be part of this it needs to be freely and capably promoted in such communication streams

– **Evan Atkinson, The Buchan Group**

There needs to be Design Stage marketability for projects that need to obtain tenants / sales prior to completion or even a pre-design commitment.
Even with As Built the rating may not be available for several months after PC at which stage the building has been sold etc.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

I agree with the idea of a design stage pre-certification process but I believe there should be some recognition associated with this.!
My ideal would be to link the Design and As Built assessment processes and awards, but to continue to recognise the achievement of a Design award (with a time limit on the validity of this award to allow some time leniency in achieving the As Built)

– **Natasha Prasaek, pdt Architects**

A full Design rating reduces risk for the as-built rating significantly. Therefore while a pre-commitment may be sufficient for marketing, the chance of projects not achieving as-built ratinsg as intended would greatly increase, at least in the short term

– **Sarah Reid, Norman Disney & Young**

Marketing of Green Star rating is of huge benefit to the industry and to limit it's use up front would be a negative but there needs to be some form of commitment through to the construction

– **Michael Kilmartin, Brookfield Multiplex**

Deleting Green Star design ratings is likely to significantly reduce the use of Green Star for rating buildings and as a driver for change. Whilst the design rating may have been open to some mis-use in the past, on balance it has served as a design driver for the significant majority of projects.

– **Director, ESD Consultancy**

As an industry submission and to appropriately represent the entire industry, the FMA has refrained from making specific choices based on Yes or No. The Association's focus is on the scope of the rating tool and ensuring that operational performance factors are properly considered at the design and construction stages of a building.

– **John Casey, Facility Management Association of Australia**

Either a pre-certification system, or allow formal Green Star - Design ratings that expire either after 2 years or as soon as the project moves out of the design phase and in to the development/construction phase, whichever is the sooner. If a building is to retain a Green Star rating once it is built, it should achieve an As Built rating.

– **Sebastian Carr, Sustainability House**

Design ratings are not considered real in the commercial world

– **Douglas Rennie, Vaughan Constructions**

Assessment at design stage should be a pre-certification only

– **Paolo Bevilacqua, Australand**

If GS aspirations are to turn the Australian built environments into performing stock as opposed to labelled stock that fails to perform, a softer approach to design may encourage teams to invest in As-built within the time frames described above.

– **Darren O'Dea, Inhabit**

Design is being used as a marketing opportunity without the delivery of an actual green outcome. Clients and tenants are being mislead.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: What is the relevant purpose of a 'design rating'? Would a commitment suffice? Should it be addressed at the design brief stage? Schematic design? Other?

The design rating rates the strength of the design. Assessing at Tender stage or equivalent is appropriate. Assessing at any other stage is too early in the process, as the design may be subject to wholesale change.

A commitment agreement similar to a NABERS commitment agreement to obtain a Green Star As-Built or Performance rating could be attractive to some clients, but this would need to be carefully managed and policed.

In one sense, the timing of the design should be irrelevant provided that the design will lead to the right outcome in the "As Built" performance rating. However, the development process includes stages with varying dominant players: feasibility, design, construction and operation. The purpose of the design rating or commitment is to assess the outcomes of the design stage as influenced by the dominant players therein (e.g. the architects and engineers); and is best done at tender stage. After this, other players increase in dominance (builder) and the As-built rating assesses the outcomes of the whole process up to the completion of construction and commissioning.

In reality a "design rating" takes place over a period of time, with some information assessed at early concept stage (such as envelope performance and daylight/glare/views) with other aspects (like specification clauses and building services designs) assessed towards the end of the design documentation period; with the whole of the design process collated and assessed at tender stage.

It is noted that, in terms of sustainable building performance, a design rating is only important if it leads to an As-Built building. It is still important that the rigour of the Green Star tool identifies issues with the design to reduce the risks of poor As-Built performance and "Fix up" costs later on.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

A design rating should allow testing of certain key credits, but should be very simple otherwise - with general committments. It should be able to be applied at a very early stage (e.g. Schematic Design)

– **Owen Grace, Brookfield Multiplex**

Commitment with confirmed intention to get as built is needed.

– **Jake Hickey, Instant Waste Management**

Submission at design stage should still remain, and in doing so makes the As Built stage submission of the project much easier.

– **Oliver Grimaldi, Cundall**

No need for a design rating, as above.

– **Matt Fitzgerald, NDY**

A design rating is more of an assessment for the design team you could almost refer to it as Stage 1 - Design approval. It is required to give the design team confidence that they can move through from schematic design into Design documentation.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

A design rating should be in place to ensure the project design is compliant with the Green Star credit requirements and to assist with achieving a As-Built submission.

– **Peta Earley, Norman Disney & Young**

A "design rating" could take place over a period of time with some information assessed early (to force the hand of architects to take responsibility for passive design issues such as envelope performance and daylight/glare/views at early concept stage) and other aspects (like specn clauses and building services designs) could be assessed towards the end of documentation.

– **Michael Shaw, Connor Pincus Group**

It should not be addressed at all. Patience and delivered promises are the virtue we want to instill.

– **Tim Edwards, Australian Refrigeration Association**

The process could be similar to that of a NABERS assessment. A commitment is undertaken by the owner, an independent assessment is undertaken to advise on its ability to achieve its targets outcome but the onerous remains with the building owner to achieve the target.

– **Mark Tickle, Grocon Group**

Follow other global tools and provide an 'interim rating' for Design-only projects, because they are often required in a number of circumstances.

– **Stephen Choi, Viridis**

A commitment type assessment would assist the design team in knowing where they stand in the rating tool during the course of the design.

– **Nicki Parker, AECOM**

A design prequalification is still necessary during the as-built submission similar to the Communities process.

– **Haris Moraitis, BSE**

The design rating should serve independent review you are in track to achieving the sustainability outcomes. It also offers clients a marketing opportunity while they are trying to secure prospective tenants.

– **Samantha Andersom, Inhabitgroup**

Credits should be signed off during the design process.

– **ESD Team, Australian Engineering Consultancy**

failure to comply or match design results in a penalty for commissioned life, simple.

– **Evan Atkinson, The Buchan Group**

Design rating is only useful for marketing purposes which is still very important. The GBCA should consider giving design teams the ability to be free to do what they want so long as they achieve the end result.
Specs are really relevant for standard Tender delivered commercial projects but the same results can be achieved without them for D&C etc.
We need to recognise and value that the sustainability outcome is in the performance and operation of the building, not in the way it is specified or documented.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

The Design rating allows the marketing of the project prior to its completion. It allows ideas / theories to be explored / tested / designed in without the pressure of being onsite. I don't believe a 'commitment' has as much weighting or assists the sustainable cause as effectively as an award based rating does. Where projects do not move ahead into construction phase, I believe it is still important to reward the design team for their work in meeting a sustainable agenda. The Design rating certification process could benefit from being brought forward into earlier stages of a project rather than to rely on the documentation stage only, perhaps through the use of pre-certification assessments.

– **Natasha Prasaek, pdt Architects**

The ability to Market a building is the key but so should be a commitment.

– **Michael Kilmartin, Brookfield Multiplex**

The design rating rates the strength of the design. Assessing at Tender stage or equivalent is appropriate - any other stage is too early as the design may be subject to wholesale change. Changes post-tender are for the most part minor. A commitment agreement similar to a NABERS commitment agreement to obtain a Green Star As-Built or Performance rating could be attractive to come clients - but will need to be carefully managed and policed.

– **Director, ESD Consultancy**

A design rating should be integrated throughout the entire process. A 'commitment' or including design as an add-on, will undermine the possibility of consistent, guaranteed acceptable outcomes.

– **John Casey, Facility Management Association of Australia**

As per answer above, it is to assert the proof of concept that a design can achieve a given level of sustainability.

– **Sebastian Carr, Sustainability House**

Design brief stage - it give the owner assurance that the building is on target of the as-built ratings

– **Douglas Rennie, Vaughan Constructions**

Commitment would suffice if registered for an as-built rating. Design brief stage is sufficient.

– **Paolo Bevilacqua, Australand**

Team responsibility, project priorities, estimation of performance and enhancement, technology review,

– **Darren O'Dea, Inhabit**

Pre-construction review with no rating.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Do you agree with the current approach to design ratings whereby a time limit applies? If so, is 24 months still an appropriate period? Should a time limit exist for Green Star – As Built ratings?

For design ratings - a 24 month time limit is appropriate. For smaller projects, there could be a sliding scale down to a 12 month minimum for projects of a certain minimum size.

A time limit for As-Built rating could be appropriate but would need to be longer - say 5 years. Although, the shift from As-Built to Performance would be appropriate, and with reasonable re-certification fees the process would be viable. Three years would perhaps be more appropriate though would depend on what documentation is required. Current documentation processes take too long to be undertaken every 24 months.

Note: There should be an exemption system that allows for project hold-over in the event of something like a GFC delaying construction. Also, projects should have an opportunity to improve the rating and 2-5 years might be appropriate in those circumstances.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The time limit should be PC + 12 months or similar rather than 24 months. As-Built ratings should not have a time limit.

– **Owen Grace, Brookfield Multiplex**

time limits could be extended if the project is committed (contracted) to get as built rating.

– **Jake Hickey, Instant Waste Management**

If Design ratings are to remain, 24 months is too long as this allows clients and building owners to market and sell their building as 'Green Star' designed without the need for following through and applying all the necessary sustainable outcomes.

– **Oliver Grimaldi, Cundall**

time limits are good to encourage clients to commit to building.
Their should be no time limit to an As-built if someone is going for a performance rating.
It is either built to the rating tool or it is not, that status should not change in 12 months or 24 months.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

24 months is appropriate for most project. But there should be a way that larger projects (with long construction periods) can apply for an extension to ensure they can keep their design rating until Project completion or until the As-built rating is achieved.

– **Peta Earley, Norman Disney & Young**

24 months seems reasonable for larger projects with larger lead times for construction. If green star is aiming to gain more traction in the smaller project market as I hope it would, there could be a sliding scale down to a 12 month minimum for projects of certain minimum size (say 500m2 or less).

– **Michael Shaw, Connor Pincus Group**

As above - no design rating please.

– **Tim Edwards, Australian Refrigeration Association**

There is certainly merit in requiring an as-built reality check of the design intent.

For the reasons explained above, the challenge is to find a model / framework that accommodates the design and operational aspects which are equally important.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

There should be no need to put a limit on an interim rating if it stays interim until the building is completed.
No there should be no time limit for Green Star - As Built ratings. Leave this to the performance tool.

– **Stephen Choi, Viridis**

As- Built should have a time limit with the ultimate aim of pushing all buildings to the Performance Rating over time.

– **Ross Davies, BlueScope**

Again, mixed views on the length of validity for an As Built rating. The As-built rating could have a life of 5 years and after that you must seek a performance rating to continue to be a Green Star building?
As built rating to be submitted within 6-12 months of PC. The time limit of a design rating should coincide with PC. At this point the design team focus should have shifted to the as-built submission anyway.

– **Nicki Parker, AECOM**

No. I think the design rating should be scrapped all together and embedded in the as-built final certification (see LEED model)

– **Haris Moraitis, BSE**

Yes. I agree with a time limit on design ratings as this ensures it can be utilised by the client to entice tenants. As built rating represent a high level of achievement at that point in time and owner is entitled for recognition for that. To deal with changing technology, perhaps it can be dated 5 star Green Star as built 2010. This ensures the rating stays relevant as time moves on.

– **Samantha Andersom, Inhabitgroup**

Some kind of limit for As-Built would be helpful (5 years?). Needs to be clear during ownership and/or upgrade changes that the As-Built is still applicable. Perhaps a built in commitment in As-Built to transition to a performance rating.

– **ESD Team, Australian Engineering Consultancy**

staged delivery should be allowed where applicable, with accreditation on delivery upon an approved schedule

– **Evan Atkinson, The Buchan Group**

The industry should provide both options. Let the market value each alternative accordingly.

The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers

I agree with the current time limits for design ratings. I don't believe time ratings should ally to 'As Builts'. The Performance tool should pick up on aspects of life cycle / maintenance (or lack thereof) / building fabric change / adaptation.

– **Natasha Prasaek, pdt Architects**

Perhaps only the 'size' of a building would change this. If the proposed construction program is greater than 18 months then time should be adjusted accordingly.
As-built ratings should be given at least 5 years initially and then perhaps the ability, for a fee, to achieve an 'ongoing' rating every 2 years?

– **Michael Kilmartin, Brookfield Multiplex**

For design ratings yes - a 24 month time limit is appropriate. A time limit for As-Built rating could be appropriate but would need to be longer - say 5 years. I think simply stating what year the building was certified on the certificate would be good enough (so a purchaser can see when it was certified).

– **Director, ESD Consultancy**

Yes, there should be a time limit. As above, I believe a Design rating should expire as soon as a project begins construction phase.

Rather than a time limit for As Built ratings, there should be a date associated with the rating (similar to LEED) to give it some context. This should also extend to Design ratings.

– **Sebastian Carr, Sustainability House**

Agree with time limit on design ratings. No time limit on as-built ratings.

– **Douglas Rennie, Vaughan Constructions**

The approach is ok but time limit is too generous. I would suggest no more than 12 months.

– **Paolo Bevilacqua, Australand**

Yes.....may need to be adjusted for the size of the project. Working on a large project at present that may not be able to deliver within this timeframe.

– **Darren O'Dea, Inhabit**

There should not be a publishable design rating and yes there should be a time limit on As built

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Do you believe that the rating scale for Green Star – Design & As Built certified ratings should be expanded to include 1 star to 3 star ratings?

- Actual ratings should be provided - encourages improvement in existing buildings and would improve the understanding of the rating scheme to the lay population.
- 3 stars could suit smaller projects, but only if the certification costs are significantly reduced.
- Having said that, low ratings will only eventuate if owners commission the ratings. This may never be taken up by the market, why would owners go public with a 1 or 2 star building?

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Yes, while ensuring that marketing states "1 Star Green Star" and enforcing against claims such as "Green Star certified" without specifying the rating.

– **Owen Grace, Brookfield Multiplex**

Very much so.

– **Jake Hickey, Instant Waste Management**

1 to 3 Star ratings at this stage might begin to cheapen the Green Star brand. More so in fact as 4 Star falls in line with the lower ratings of 'Good' and 'Silver' ratings for BREEAM and LEED respectively. 3 Star and below suggests a lesser rating than the lowest available ratings across the world.

– **Oliver Grimaldi, Cundall**

No. In reality most of the time even 4 stars is seen as a waste of time/money. Most people in the know assume 4 stars is essentially just standard "good" practice for a new design. There is very little chance anyone would try to obtain a certified 3 or less star rating. That said it could be worth having an informal number of points for lower star ratings for self assessments.

– **Matt Fitzgerald, NDY**

No.

– **John Mabb, Gold Coast City Council**

No

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

No, because based on each star rating having 15 points difference from the last (4 star 45pts, 5 star 60 pts, 6 star 75 pts), a 1 star rating would probably only require somewhere between 0-10 points to be achieved, which should not be encouraged.

Therefore, to introduce a 1-6 star rating system the point achievements would need to be looked at and possibly changed, which would be confusing for previously awarded projects. Changing the name of the award could be more relevant, that is rather than 4, 5 or 6 stars, have bronze, silver and gold.

– **Peta Earley, Norman Disney & Young**

While I am happy with the current 4, 5, and 6 star certification levels, perhaps this could be extended down to 3 stars. I would not support certifications of 1 or 2 stars, as this seems pointless to reward poor practice.

– **Michael Shaw, Connor Pincus Group**

Not qualified to answer

– **Tim Edwards, Australian Refrigeration Association**

No

– **Mark Tickle, Grocon Group**

This would seem more relevant to the Performance tool given that new or refurbishment projects should meet a minimum standard.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Definitely.

– **Stephen Choi, Viridis**

No - This over complicates the below 4 star buildings rating, a 'Certified' rating that was still above BAU would be a better option.

– **Ross Davies, BlueScope**

New buildings should not be targeting less than 3 stars (minimum performance) and rewarding less than best practice does not push the industry standards.

– **Nicki Parker, AECOM**

No. The industry and public will be even more confused to differentiate between the differences of these star ratings.

– **Haris Moraitis, BSE**

They could be done, but it unlikely project that achieve these benchmark are likely to proceed with certification.

– **Samantha Andersom, Inhabitgroup**

Keep 4 Star as the entry level - helps to encourage higher star ratings
Why would a building owner pay to certify at a below 4 star level.

– **ESD Team, Australian Engineering Consultancy**

no, these should be removed

– **Evan Atkinson, The Buchan Group**

No - generally the public only dimmly know the difference between the different ratings. If a project achieved 1 Star it would be a poor building but still able to say it was Green Star rated and this would dilute the value of the Green Star name.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

NO

– **Natasha Prasaek, pdt Architects**

No- Green Star is for the top end of the (sustainability) market - not for all projects.

– **Sarah Reid, Norman Disney & Young**

It would make sense to change the rating numbers to be more relevant. If there are no 1 - 3 star ratings then how do we arrive at 4 - 6 star ratings? Perhaps they should be bronze, silver and gold ratings (then perhaps platinum if we improve upon that!)

– **Michael Kilmartin, Brookfield Multiplex**

Yes - but only if the certification costs are significantly reduced. I think some building owners would go for any rating if the costs were minimal.

– **Director, ESD Consultancy**

No, the purpose of the tool is to recognise buildings that have been designed and built to a more sustainable standard. The overall value of green star would be diminished and potentially dilute or remove incentives for those currently under 4 stars, and particularly those who may need a push, to strive for the higher goal.

– **John Casey, Facility Management Association of Australia**

Not if the intention is for Green Star to continue to recognise the top echelon of buildings. A 1 star building is below best practice, therefore should not be recognised. However, if 0 stars represents "code minimum" perhaps the scale could be relevant to coax under-performers up to 4 stars (similar to NatHERS ratings on houses that exceed code minimum 6 stars)

– **Sebastian Carr, Sustainability House**

No

– **Douglas Rennie, Vaughan Constructions**

Can't see why not but as a developer I struggle to see where we would want a certified rating below 4 stars for a new building or significant refurbishment as this would basically be an certification that we are below best practice. Makes sense for performance ratings but don't believe there will be much uptake on new builds.

– **Paolo Bevilacqua, Australand**

As mentioned, may be useful for councils

– **Darren O'Dea, Inhabit**

Only for existing buildings undergoing upgrades of more that 50%

– **Kevin Moore, Focus Energy Solutions and Airconomix**

–

Q: Do you believe that there is a need to recognise achievements in excess of 6 stars?

Not if this means extending the rating scale beyond six stars:

- If there are too many 6 star projects certified, tighten up the stringency.
- The tool could have more emphasis on the innovation credits element, to recognise achievements.
- The definition of 6 stars is already “world leadership”. This implies that 6 stars will always be the highest and that credit stringency changes as practice changes.
- Need to “idiot proof” the rating scheme – some clients, especially councils, specify the highest rating possible in the brief without any idea of what that actually entails. As soon as a higher scale is introduced there will be Clients demanding 10 stars without understanding the implications or impossibilities in some instances.
- The tool credit build-up and weightings already make 6 Star a significant stretch, which often leads to some contrived and overly-complex engineering solutions in order to achieve this rating. There has been too much focus on the top 5% of buildings in Green Star and not on the outcome of the journey generally.
- The current perception of 6 Star is “Excellent” and is hard enough to achieve. Extension beyond this might dilute this achievement if not managed properly.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

No

– **Owen Grace, Brookfield Multiplex**

a high commendation certificate for a typical credit could be a way of setting the bar higher & creating points of difference between different 6 star buildings.

– **Jake Hickey, Instant Waste Management**

7 Star could become available to projects that achieve exceptional scores in all categories (e.g. total score of 85+). This would fall in line with a BREEAM 'Outstanding' that is awarded in the UK.

– **Oliver Grimaldi, Cundall**

At this stage 6 stars is still a high benchmark. In reality building owners will promote achievements in excess of 6 stars themselves. Highlights of exemplary projects in GBCA marketing material would be another way.

– **Matt Fitzgerald, NDY**

No.

– **John Mabb, Gold Coast City Council**

Perhaps to coincide with NABERS higher rating maybe

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Yes, there is 25 points (more if you include innovation) that can be achieved above a 6 star rating, so yes if a project can achieve 90+ points they should be recognized as being better than a 6 star building getting 76 points. Again, this points in the direction of going with bronze, silver, gold and platinum!!

– **Peta Earley, Norman Disney & Young**

No. If there are too many 6 star projects certified, tighten up the stringency. I am against star rating systems going beyond 6. The only reason NATHERS house energy ratings have increased the star rating scale to include star ratings as high as 10 is to placate the domestic building industry bodies who want home buyers to think that compliance with Section J building envelope requirements (arbitrarily known as 6 stars) is somehow really high performance. Most people are familiar only with rating systems that have 6 as the highest level.

– **Michael Shaw, Connor Pincus Group**

In my view innovation should be called just that - Green Star Innovation certification. It is not necessarily superior until it has stood the test of time. Many innovations do not.

– **Tim Edwards, Australian Refrigeration Association**

No. However the benchmark should be continually raised so as to continue the improvements in the industry and the environmental impact it is having.

– **Mark Tickle, Grocon Group**

I guess that's a matter of progress demonstrated by the industry. Consistent awareness of environmental matters and use of the tool will eventually lead to a 'new norm' by virtue of increased demand and weight of numbers applying the tool.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

No. Just make 6 stars truly world leading - because at the moment, it probably isn't.

– **Stephen Choi, Viridis**

Yes - Suggest a GBCA Board selected award each year for the 'GBCA Board, Green Star Building of the Year' rather than trying to have another overall rating adding to the prestige of the award. This could be for any type of building that goes above and beyond the expectations of Green Star or is far in away a leader in their building type.
e.g. a 5 star industrial building may be cutting edge and therefore eligible if the next best to date is 4 star.

– **Ross Davies, BlueScope**

Beyond 6 stars may be open to abuse, with box ticking occurring rather than good design. 6 stars allows buildings constructed at different times to be compared in the same bracket as being best in their time.

– **Nicki Parker, AECOM**

No. We should change the benchmarks so a 6 star GS in 2005 is not the same with one in 2016.

– **Haris Moraitis, BSE**

Regular review of the benchmarks and "raising of the bar" will ensure 6 star remains world leadership.

– **Samantha Andersom, Inhabitgroup**

Yes. Provide recognition for excess achievement in certain areas. The GBCA should recognise the application of other tools such as One Planet Living, Living Building Challenge and others as helping grow the market for Green Star.

– **ESD Team, Australian Engineering Consultancy**

Benchmarks should aim to keep 6 Star as a difficult to achieve goal for all building types. Projects can already discuss the number of points they achieve (e.g. Pixel) and this is probably sufficient.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

No - six stars is world excellence so cannot see how (in it's current form) it can be 'exceeded'. If a project manages to exceed this somehow then the rating tool probably needs to be adapted / changed to raise the bar again. Awards over 6 stars would cause confusion / diminish the current significance of the stars awarded.

– **Natasha Prasaek, pdt Architects**

Yes, achieving the highest ratings possible or exceeding expectations should always be celebrated!

– **Michael Kilmartin, Brookfield Multiplex**

No. The tool credit build-up and weightings already make 6 Star a significant stretch, which often leads to some contrived and overly-complex engineering solutions in order to achieve this rating. I actually don't believe that achieving a 6 Star rating is necessarily a good thing - and I see no value in having a 7 Star or 6 Star-plus reward system. There has been too much focus on the top 5% of buildings in Green Star and not on the outcome of the journey generally.

– **Director, ESD Consultancy**

No, 6 stars should represent world leadership and all star ratings should be periodically rebalanced to reflect current best practise, Australian excellence, or world leadership (eg. a 6 star building today maybe considered a 4 star building in five years time). Should there be anytime where it is considered that the design and construction of a building exceeds 6 stars, this may indicate that the rating tool is not reflecting current standards for world leadership.

– **John Casey, Facility Management Association of Australia**

Potentially there could be a crown for the highest ever rating, but otherwise being labelled "world leader" should suffice. The specific number of points helps us distinguish between buildings with the same rating.

– **Sebastian Carr, Sustainability House**

No

– **Douglas Rennie, Vaughan Constructions**

Yes. For example - carbon neutral (operating energy), water positive, etc certification.

– **Paolo Bevilacqua, Australand**

Yes. Also at some point we will need to differentiate between buildings that have achieve their rating through the use of gas fired cogen

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: What features should be included as part of the Green Star – Design & AS Built online system?

The following features:

- Technical resources, technical support, Rating tools, FAQs, open forum, Administration, Public register.
- Incorporate technical clarifications and CIR's immediately into the online tool/manual, or update it every 3 months.
- Blogging capability with Case Manager and an Assessor (as per LEED).

- Incremental points award (like an on-line pre-approved credit system).
- Known energy benchmarks of different classes of buildings.
- Compatibility with all computers, browsers and operating system - Sounds obvious but NABERS isn't compatible with Windows8.
- Refer LEED online, this is an excellent resource. Also refer to the Green Unity tool, which has excellent resources.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The above seems to cover key requirements

– **Owen Grace, Brookfield Multiplex**

on line tech support with a case manager access to the projects' data and available on the phone

– **Jake Hickey, Instant Waste Management**

Projects should be able to submit and achieve credits in stages prior full submission, much like the 'pre-assessment' approach.

– **Oliver Grimaldi, Cundall**

The ability to project manager a Green Star project. Tracking of status of deliverables. It should be possible to enter a persons name and email address and assign them to a deliverable, and let the system handle the rest i.e. automatically email them the templates to complete and send reminder emails until they upload the info. It should email the project manager once new info has been uploaded for review etc.

– **Matt Fitzgerald, NDY**

platform needs to be robust and amendments communicated

– **John Mabb, Gold Coast City Council**

Lots of examples

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

It should allow for internal use within project teams. That is project team members should be able to use the system to upload their documents, to then be assessed by the project GSAP, before being submitted for assessment.

– **Peta Earley, Norman Disney & Young**

Incorporate technical clarfications and CIR's immediately into the tool/manual online if this is technically possible.

– **Michael Shaw, Connor Pincus Group**

This all sounds like BIM to me. Is there a credit for BIM somewhere - there should be. It is obviously where we are going. But be very careful because so far HVACR BIM is not satisfactory.

Be careful that the computer does not hide the truth.

– **Tim Edwards, Australian Refrigeration Association**

Objectives described seem reasonable. Whether all the benefits can be achieved as intended remains to be seen.
Delivery is going to be entirely online. Is it intended that this will be in a form accessible by a project team with security for team members for the duration of a project? This could included the nominated GBCA member so that the project team can interact during the certification process.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Templates, universal access to project teams, a way of bookmarking and highlighting documents instead of having to upload the same drawing multiple times to achieve multiple credits.

– **Stephen Choi, Viridis**

All CIR's should appear when you look at particular credits, GSAP forums, project directories, online evidence collection

– **Nicki Parker, AECOM**

–

It will be good to see the online tool and its functionality to address any gaps and inclusions.
However a hard copy of the tool is still useful as especially when it is needed in charettes and meeting with other stakeholders (especially contractors) with no online access.

– **Haris Moraitis, BSE**

Ability to work across all devices. With increased acceptance and cost effectiveness portable devices, it is important for the online system to work across all operating systems, so it can be utilised by team to the greatest benefit.

– **Samantha Andersom, Inhabitgroup**

On-line system should help teams track progress. Should produce specifications, subcontractor templates and letters. Provide greater integration with the manual.

– **ESD Team, Australian Engineering Consultancy**

BERS pro compatability, if not yet already

– **Evan Atkinson, The Buchan Group**

It should make the process easier and less time consuming, rather than harder.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Agree with proposal to move entire system online. No further comments

– **Natasha Prasaek, pdt Architects**

From looking at the GS Performance online system - its actually quite hard to review credit criteria and submission requirements as there are across so many pages. Recommend that some form of downloadable technical manual is still available.

– **Sarah Reid, Norman Disney & Young**

Blogging capability with Case Manager and an Assessor (as per LEED). Incremental points award (like an on-line pre-approved credit system).

– **Director, ESD Consultancy**

Dynamic navigation interface that takes the user through the appropriate pathway for a project rating
Project management system (tracking multiple projects)
Documentation management system (storing documentation on an ongoing basis in preparation for submission)
Free access to online technical manuals & example credit submissions
Active message boards to share information, collaborate and establish networks.

– **Sebastian Carr, Sustainability House**

Keep it simple and easy to use.

– **Douglas Rennie, Vaughan Constructions**

The online system should not simply be a system that allows the uploading of short reports that would otherwise have been burnt on to a CD and sent to the GBCA. More importantly, the system should automate the business logic associated with each credit. It should also have functionality that allows projects to produce a Green Star schedule that be used as a contractual document by the applicant.

– **Paolo Bevilacqua, Australand**

Energy, daylight and comfort modelling

– **Darren O'Dea, Inhabit**

Possibly consider providing a range of templates for commissioning. It has become obvious that consultants have little or no knowledge of the required CIBSE or ASHRAE processes. Perhaps contractors could have a portal and be pat of the process

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Do you agree with the proposed timeframe / schedule for updates to the rating tool? If not, what is your preferred schedule for updates?

Yes, annually for minor fixes, corrections and clarifications and every two years for a more detailed review and update (if required, do not change for sake of change). Frequent changes should be avoided unless necessary, a moving target discourages uptake and creates confusion.

Updates should be made at the same time each year so that users do not constantly have to check whether they may have missed something recent. Align updates of GBCA rating tools with BCA updates (May of each year).

Note: Timeframes are extremely tight given the GBCA resources available. The update to Design & As-Built 2014 seems incredibly tight.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Agree with the proposed timeframe.

– **Owen Grace, Brookfield Multiplex**

As long as it is able to be achieved. Don't rush it just to be hit a deadline.

– **Jake Hickey, Instant Waste Management**

Early 2014 seems ambitious but agree if these timeframes can be met.

– **Oliver Grimaldi, Cundall**

Some updates are higher priority than others. Staged updates may be required. It is better to get some things right than many things not-quite-right. Releasing a new manual with the same problems with clarity and a lack of templates would be worse than keeping the same manual but making the process clearer and simpler.

– **Matt Fitzgerald, NDY**

Major review every 5 years

– **John Mabb, Gold Coast City Council**

No comment

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Updates that affect the documentation that is required to be submitted should be updated every couple of months.

– **Peta Earley, Norman Disney & Young**

If immediate inclusion of TC's and CIR's is not possible, update it every 3 months, with a major tool review every 2 years as suggested.

– **Michael Shaw, Connor Pincus Group**

Fast is good. You can always apologise and fix it.

– **Tim Edwards, Australian Refrigeration Association**

Agree

– **Mark Tickle, Grocon Group**

Yes - it will take as long as you need.

– **Stephen Choi, Viridis**

Agree.

– **Ross Davies, BlueScope**

No issues.

– **Nicki Parker, AECOM**

Been online that would facilitate a more frequent update and would expect at least monthly.

– **Haris Moraitis, BSE**

Proposed schedule is appropriate.

– **Samantha Andersom, Inhabitgroup**

Tool should be updated annually. Manual automatically updated to include all TCs. What is online should be current with no requirement to review other information. Refer to BCA.

– **ESD Team, Australian Engineering Consultancy**

The GBCA should take adequate time to get it right and then manage the change. If this can be achieved in the proposed deadline, that great.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Yes

– **Natasha Prasaek, pdt Architects**

I do agree but they are extremely tight given the GBCA resources available.

– **Director, ESD Consultancy**

The timeline to achieve the outcomes in this paper (in partiuclar a beta test release in April) seems unrealistic, however we agree that updating the tools in line with the roadmap should be a high priority given the degree of complexity & costs currently involved in a Green Star rating. The widespread adoption of "informal" Green Star ratings should be seen as evidence that the formal system is not always considered viable.

– **Sebastian Carr, Sustainability House**

Agree

– **Douglas Rennie, Vaughan Constructions**

I would suggest 3 years is more appropriate for major updates. For minor amendments / updates once or twice a year is appropriate however clear rules will need to be established for what changes apply to projects similar to current rulings. Amendments

undertaken between major updates should be made in batches and the most up to date version given a unique reference - e.g. v1.1, 1.2, etc.

– **Paolo Bevilacqua, Australand**

Priority should be given to delivery of well thought out, functional rating tools.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Should the scope of the tool be limited to environmental issues, or should this scope be expanded to include socio-economic or sustainability impacts?

Anything which expands the criteria to obtain credits is a good one. Right now, the credit criteria are very strict which often drives the mentality that "if we can't achieve the points, we won't bother at all". For example, "We can't provide enough bike parks to get the credit so we won't have any" or "we don't get any points for our rainwater tank regardless of how big it is so we won't have one at all" – are both real comments from clients on recent multi-unit projects.

By allowing a more holistic, outcome driven compliance approach, these "little bits" that don't add up to one credit on their own can together achieve a credit and thus be integrated. Alternately, provide "half points" or a wider range for each credit. Green Star takes an "all or nothing" approach whereas "every little bit counts" would make the tool more feasible to more projects.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The tool should not be expanded to include social initiatives. The correct place for this would be an ongoing rating. This tool should remain within the scope of building design.

– **Owen Grace, Brookfield Multiplex**

Sick building syndrome is an area that should be included. I.E. more focus on the social benefits will allow better marketing of the green star system by the current building users (who will be the decision makers of the future).

– **Jake Hickey, Instant Waste Management**

Suggest it could be expanded in this manner, however suggest this be an option to achieve compliance i.e. by setting the points such that a project that doesn't pursue these initiatives isn't penalised, however a project may pursue the initiatives in lieu of other existing initiatives e.g. energy etc.

– **Matt Fitzgerald, NDY**

Socio-economic impacts should be optional to consider. It is hard on a building scale to impact upon those broader sustainability issues.

– **John Mabb, Gold Coast City Council**

social and cultural impacts are just as important to sustainable communities and can be utilised in buildings.

– **Anissa Farrel, Conrad Gargett Riddel Architecture**

Do not water down the tool by trying to cover too much ground. Green Star focus should be on reducing environmental impacts of buildings and increasing occupant health, with the possible exception of Green Star communities which rightly has a broader agenda.

– **Michael Shaw, Connor Pincus Group**

Environmental is enough, hard enough and critically important . Socio- economic is very subjective. Lets stick with environmental and get it right.

Right now we do not have some of the basics like a life cycle inventory - lets get this in place first.

– **Tim Edwards, Australian Refrigeration Association**

Should be expanded to incorporate Socio-economic items such as a greater emphasis on public transport, cycling, walking and the like. Also recycling, waste items and encourage better general recycling.

– **Mark Tickle,Grocon Group**

Buildings fit within an existing physical environment and within the attendant historical, cultural and social context of that environment. A truly sustainable, triple bottom line approach is the logical extension of a fully integrated tool.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Even with environmental issues only, there is no common metric to make it make sense, e.g. if everything was somehow linked to Greenhouse Gas emissions then there would be a limited number of credits. As there are so many broad and non-comparable areas, the weightings become purely subjective and are rightly subject to scrutiny. If socio-economic factors are included then this problem is only exacerbated, and the points-scoring system has to be very carefully re-imagined.

– **Stephen Cho, Viridis**

The tool should aim to be a holistic sustainability tool not just an environmental tool so socio-economic aspects should be included.

– **Ross Davies, BlueScope**

The scope should be expanded to include socio-economic impacts with the reasons and inclusions communicated in detail to the market.

– **Nicki Parker, AECOM**

Expand to social and economic impacts

– **Haris Moraitis, BSE**

Social interaction and engagement is often critical to the long term success of my sustainability initiatives, such as community gardens. As such recognition of social initiative targeting groups to engage in the process is important.

As cost sustainability outcomes is often prevent projects from pursuing certain initiatives due to great expense.

– **Samantha Andersom, Inhabitgroup**

Yes. Look at incorporating some elements of the GS Communities tool - ie job creation, training etc.

– **ESD Team, Australian Engineering Consultancy**

Trying to stay on topic: Carbon needs to be replaced with 'non-renewable' or megajoule rating. Reference to carbon is pro-nuclear. keep it up, we will all be green from radiation. otherwise intention is supported. It appears socio-economic sustainability is part of this 'project'

– **Evan Atkinson, The Buchan Group**

General road map comment - Just combining lots of old credits into one big credit does not make the tool easier or simpler to use unless there are efficiencies gained through doing this. Address the requirements of 1 big credit with multiple criteria is going to be the same as addressing the requirements of multiple smaller credits. Unless efficiencies can be found, it would be easier to continue to have multiple small credits to deal with.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Expand to encompass ALL facets of sustainability

– **Natasha Prasaek, pdt Architects**

Inclusion of socio-economic impacts is welcome, however should be carefully scoped to ensure that projects have the opportunity to achieve some points - i.e. local employment at construction stage.

– **Sarah Reid, Norman Disney & Young**

This is a building rating tool, and so should be limited to environmental issues which can be quantified. Socio-economic sustainability impacts are difficult to impossible to quantify and will be difficult to measure and assess. Focus on this area in the Communities tool, not design & as-built.

– **Director, ESD Consultancy**

The tool needs to have an holistic approach and focus on the full meaning of sustainability. By excluding social and economic impacts the tool becomes self limiting in its reach, impact and potentially, in the longer term, its credibility.

– **John Casey, Facility Management Association of Australia**

Where a socio-economic impact would lead to the potential shortened lifespan of a building, or impacts on the ability for other projects/buildings to achieve levels of sustainability, these should be considered.

Creates opportunities for marquee developments to be recognised etc. Development based around micro-economy drivers.

– **Sebastian Carr, Sustainability House**

Anything that effects the environment. More focus on the effect of the building and less focus on creature comfort.

– **Douglas Rennie, Vaughan Constructions**

As mentioned in previous responses, I support the expansion however my main concern is that it becomes more difficult to compare/benchmark projects against each other from an environmental perspective which I believe will be what most of the market believe the tool is for. Having minimum requirements in key categories for different star ratings may be a solution to address this.

– **Paolo Bevilacqua, Australand**

No

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Are there any issues or credits that you think should not be included in the new Green Star – Design & AS Built rating tool because they are now just 'business as usual'? Do you believe that they should be removed entirely, or should they become minimum requirements for other credits (Eg. High frequency ballasts could become a requirement for other lighting credits?)

The rating tool needs to be limited to issues which can be quantified. In general, socio-economic sustainability impacts are difficult or impossible to quantify and will be difficult to measure and assess meaningfully. Nevertheless, credits such as Transport could include an element of social impact assessment, such as health benefits to the community; also community engagement, historical preservation and place making. The Innovation category could be expanded to cover this type of benefit, and move beyond its currently limited scope.

A greater focus on this area should be made in the Communities tool than in design & as-built.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Refrigerant ODP should be excluded, along with the 1 pt in Change in Ecological value. High Frequency Ballasts should also go.

– **Owen Grace, Brookfield Multiplex**

Not sure but a focus on the actual environmental impact of a credits choices should be addressed by using LCA to determine if it is outdated.

– **Jake Hickey, Instant Waste Management**

0 ODP refrigerants and insulation, high frequency ballasts.

– **Matt Fitzgerald, NDY**

minimum requirements is a good idea
maybe you get additional points if you go beyond the minimum

– **Anissa Farrel, Conrad Gargett Riddel Architecture**

recently assessed an Interiors project that did not have high frequency ballasts installed, so yes these issues should still be in the rating somewhere. I think they are common enough now that HF ballasts should be a conditional requirement. Even if it is only conditional to claim other lighting credits. That is without HF ballasts installed in fittings, you cannot claim another points under lighting credits.

– **Peta Earley, Norman Disney & Young**

I agree the high frequency ballast credit could be removed. Benchmarks for other credits could be tightened up to reflect technology improvements in recent years. (For example the existing 2 point benchmark for lighting power density credit could be reset as the 1 point benchmark).

– **Michael Shaw, Connor Pincus Group**

It is in my view important to have an integrated tool for HVACR including energy efficiency and direct emissions. It is also important to include design, commissioning and maintenance.

Let's give these the importance they warrant.

– **Tim Edwards, Australian Refrigeration Association**

HFB lighting, Refrigerant leak detection (standard chiller design includes this), Refrigerant ODP, Fire System Water Consumption (standard practice), Water and Energy Sub Metering (needs to be more streamlined, becoming ridiculous),

– **Mark Tickle, Grocon Group**

Lack of detailed application experience to comment constructively.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

There should be a roadmap that connects the NCC/BCA with Green Star, in the same way the UK's Code for Sustainable Homes is the roadmap for the UK Building Regulations. That way, what you refer to as 'business as usual' actually is business as usual, i.e. legal compliance.

– **Stephen Choi, Viridis**

This is being addressed by the review of individual credits.

– **Ross Davies, BlueScope**

Low formaldehyde - should be minimum requirement with one point for zero formaldehyde.
High frequency ballasts - removed.
ODP - removed.
Construction waste management – 80% is seen as BAU
Points for a GSAP seems arbitrary, it would be interesting to know how many projects don't claim this credit. Perhaps it should become a minimum requirement for Design & As-built.

– **Nicki Parker, AECOM**

Emi: ODP refrigerants and insulation
IEQ: light levels
Man: metering
Peak demand to be consolidated with the calculator (same documentation is used in both)

– **Haris Moraitis, BSE**

Given these credits are BAU, integrating them as a minimum requirements will ensure that bar continues to be lifted and performance is increased. If may also assist smaller projects, particularly community based project rather then commercial can generate a better appreciation for what is considered best practise.

– **Samantha Andersom, Inhabitgroup**

Convert many credits to mandatory requirements. e.g. Commissioning clauses, building tuning, GSAP.
Remove high frequency ballasts, ODP in thermal insulation

– **ESD Team, Australian Engineering Consultancy**

WGE to participate as part of TAG & IAG.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Incorporate credits where appropriate (i.e.: some of the 'Tra' credits) but cannot think of any other credits that are now redundant over & above what's been identified.

– **Natasha Prasaek, pdt Architects**

High frequency ballasts.
Insulant ODP

– **Sarah Reid, Norman Disney & Young**

The ICA role is now irrelevant. Most if not all of the general Management credits (GSAP, ISO 14001, EMP's, site waste management) are now almost all business as usual.

– **Director, ESD Consultancy**

Please see comments provided earlier regarding operational considerations.

– **John Casey, Facility Management Association of Australia**

Recycled % of construction waste becoming more standard in the industry.

– **Sebastian Carr, Sustainability House**

Anything already required in the BCA should not be in the tool.

– **Douglas Rennie, Vaughan Constructions**

Only things that are required by the latest version of the BCA should be removed as anything in addition to this could be considered best practice or beyond. It is important to keep in mind that much of the argument for items that are BAU are relevant only to particular sectors such as office and removing these credits from all tools may make it too much of a stretch for some sectors resulting in less uptake of the tool.

In addition, more thought needs to be put into only relevant credits being applicable to certain sectors or applicable requirements being established. There is a common perception still that some non-office tools are too "office" centric.

– **Paolo Bevilacqua, Australand**

Yes. The ICA role should be compulsory and not worth a credit. Enforcing commissioning procedures appears to be always needed.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Are there any other issues or impacts that are not covered by the roadmap that should be considered for inclusion in the new rating tool? If so, please provide links to resources that will assist the Technical Advisory Group (TAG) is assessing the relevance of such issues.

Green Star Accredited Professional credit – Assuming that only a Green Star Accredited Professional can lodge a rating online (and even if they can't), does it matter at what point they were engaged and how many meetings they went to? While having a Green Star Accredited Professional on board might make it easier to achieve a rating, it isn't necessary and as long as the project achieves the desired outcome, it shouldn't matter if a Green Star Accredited Professional did it or not. This credit is about the process rather than the outcome.

VOC in paints – almost all paints now seem to comply.

PVC minimisation – good engineering practices are used in any case.

Many of the general Management credits (GSAP, ICA, EMP's, site waste management) are now almost all business as usual.

The high frequency ballast credit could be removed and is counter-productive to incorporation of other lighting technologies due to assessment method.

Benchmarks for other credits could be tightened up to reflect technology improvements in recent years. For example, the existing 2 point benchmark for lighting power density credit could be reset as the 1 point benchmark.

Other credits are easily achieved (e.g. Building User Guide, Refrigerant ODP) but these aspects may be omitted from projects if they are removed, so they should stay.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

No additional issues or impacts to be raised.

– **Owen Grace, Brookfield Multiplex**

The BCA Section J places importance on the achievement of minimum envelope thermal performance standards. Green star needs to place more importance on improving the envelope performance beyond this minimum, as the BCA intends only to eliminate worst practice, not drive best practice. Part of the conditional energy credit should be establishing a higher envelope thermal performance than that in deemed-to-satisfy J1 and J2 or a JV3 Reference Building. Achievement above this new conditional minimum could also be rewarded with energy points in the Design rating, as could pressure testing and confirmation of insulation and glazing installed in the As Built rating. These are yet to be adequately addressed in the BCA.

– **Michael Shaw, Connor Pincus Group**

As above please give greater emphasis to HVACR, loose ozone (its history) and highlight HVACR innovation.

– **Tim Edwards, Australian Refrigeration Association**

Design for refurbishment or refit to ensure long life.
Local sourcing as a socio-economic credit
Supply Chain Sustainability
Adaptability and Resilience

– **Ross Davies, BlueScope**

Embodied water & energy

– **Haris Moraitis, BSE**

Yes - Review of the assessment process. More recognition of renewable energy systems. More connection between buildings and the community. Recognition of educational campaigns which are implemented for the tenancies.

– **ESD Team, Australian Engineering Consultancy**

WGE to participate as part of TAG & IAG.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

No

– **Natasha Prasaek, pdt Architects**

Energy should be rated as energy (the metric being the amount of energy/resource being consumed by the building) so that it recognises energy efficiency. GHG emissions should be rated separately as emissions. Currently the use of GHG emissions as an energy metric is encouraging energy-inefficient solutions and the inappropriate use of tri-gen. Energy and emissions should be dealt with with equal merit but separately. The impact of passive design and natural ventilation techniques are not effectively recognised, particularly by the BCA approach to determining a standard reference building.

– **Director, ESD Consultancy**

See above. Will be important to consider how the credits can be applied to different building types and how with one universal tool credits that are not relevant are treated.

– **Paolo Bevilacqua, Australand**

Q: Currently there are only two minimum requirements in the Green Star rating tools for design and construction – the Greenhouse Gas Emissions Conditional Requirements and the Land Use and Ecology Conditional Requirement. Should there be any additional minimum requirements required for teh achievement of a particular Star rating? For example, should a mandatory Greenhouse Gas Emissions score be achieved in order for a project to be awarded a 5 or 5 Star Green Star Certification?

Certification should be about the overall outcome of the project, not individual initiatives, so, generally, AIRAH responses indicated that conditional requirements should be used sparingly for key issues or to drive particular responses by team members. Some individual responses are:

- A minimum number of building envelope thermal performance energy credits should be achieved for a 4 star rating, with higher minima for 5- and 6-star ratings.
- An additional passive design related conditional requirement to drive better architectural responses early in the design process.
- There could be mandatory scores in each credit category in a similar way that the Communities Tool has been developed. It is still cheaper and easier to get a 6 Star Green Star rating in a building with no windows and minimal outdoor air provision.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Re-weighting performance for energy to be higher than currently will achieve this effect. Energy should be up to 40% of the total tool weighting.

– **Owen Grace, Brookfield Multiplex**

Yes, I think the bar should be set higher. Minimum ratings should be required for the top rating.

– **John Mabb, Gold Coast City Council**

To keep pushing the boundaries it might be beneficial to have minimum GHE scores for 5 - 6 star ratings, we need to keep pushing the goal to innovate and remain resilient.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

See above. A minimum number of envelope thermal performance energy credits should be achieved for a 4 star rating, with higher minima for 5- and 6-star ratings.

– **Michael Shaw, Connor Pincus Group**

Yes absolutely a minimum GHG emissions score. Please ensure cogeneration / trigeneration are provided for.

– **Tim Edwards, Australian Refrigeration Association**

A raising of the bar is required on both benchmarks in order to continue to drive improvements

– **Mark Tickle, Grocon Group**

Ideally, a sustainable triple bottom line outcome is the result of a balanced approach not a single issue, otherwise it is difficult, if not deceptive to hold out a sustainable claim.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

If the tool is to be more robust then yes, a whole number of areas should become mandatory, with Greenhouse Gas Emissions being one of them.

– **Stephen Choi, Viridis**

GHG emissions score may need to be related to building type, e.g. High rise v Industrial building

– **Ross Davies, BlueScope**

Water should be included as mandatory, as well as Climate Change Adaptation. These should sit outside of the categories as an overarching requirement.
GSAP on the project.

– **Nicki Parker, AECOM**

No

– **Haris Moraitis, BSE**

Given the green star tools focus is to benchmark building against each other but allow design team to flexilbity on how to achieve this goal, this approach would seem overly restrictive. However the flip side to that is a truly sustainable build must achieve a reasonable level of performance across all areas. Perhaps a less rigid approach is dictate a certain target percentage must be achieve across each category to ensure flexibility. Eg 15% of credits must be achieved in the energy and water category to attain an X star rating. However, this may not be required if the new tool has greater balance across all categories.

– **Samantha Andersom, Inhabitgroup**

A minimum GHG emissions and water score should be imposed.

– **ESD Team, Australian Engineering Consultancy**

No - I think projects sort this out automatically. If a project achieved poor energy outcomes then it must do a lot more than other buildings in other areas - this is still a good outcome.

The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers

No - I think this may be too limiting for projects which may be able to achieve significant sustainable results through other means/ methods

– **Natasha Prasaek, pdt Architects**

Suggest that minimum achievement of 6 points/30% GHG emissions reduction for 5/6 Star ratings.
Also minimum achievement at wat 1 - 2 points

– **Sarah Reid, Norman Disney & Young**

Yes. There should be mandatory scores in each credit category in a similar way that the Communities Tool has been developed. It is still cheaper and easier to get a 6 Star Green Star rating in a building with no windows and minimal outside air provision.

– **Director, ESD Consultancy**

No further comments

– **John Casey, Facility Management Association of Australia**

Modelled approach to energy efficiency should be mandatory for achievement of 4 stars and above. A building should not be considered "best practice" where there has been no energy modelling performed.

– **Sebastian Carr, Sustainability House**

There should be a mandatory emissions score.

– **Douglas Rennie, Vaughan Constructions**

Yes, particularly with the introduction of socio economic credits. Refer to my previous comments.

– **Paolo Bevilacqua, Australand**

Yes, a mandatory GGE sore should be required. Buildings are often delivered with poor energy performance

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Are there any other opportunities for providing performance or prescriptive paths to address the issues highlighted in the road map? If so, please provide details below.

Energy should be rated as energy (the metric being the amount of energy/resource being consumed by the building) so that it recognises energy efficiency. GHG emissions should be rated separately as emissions. Currently the use of GHG emissions as an energy metric is encouraging energy-inefficient solutions and the inappropriate use of tri-gen. Energy and emissions should be dealt with on equal merit but separately.

The impact of passive design and natural ventilation techniques are not effectively recognised, particularly by the BCA approach to determining a standard reference building.

In some tools (e.g. office) Green star needs to place more importance on improving the envelope performance beyond the NCC minimum. Part of the conditional energy credit should be establishing a higher envelope thermal performance than that in deemed-to-satisfy J1 and J2 or a JV3 Reference Building. Achievement above this new conditional minimum could also be rewarded with energy points in the Design rating, as could pressure testing and confirmation of insulation and glazing installed in the As Built rating. These are yet to be adequately addressed in the BCA.

Recycling of high impact materials e.g. lighting.

Life Cycle Costing and/or Assessment – should be incorporated in the tool itself and not included for Innovation (perhaps in next revision – once industry catches up).

Construction Activity Pollution Prevention – refer LEED.

Green Power – refer LEED.

Regional Materials – refer LEED.

Maximising Open Space – including vegetated/green space on site that is open access and encourages community use.

Proximity to Amenities – refer LEED and BREEAM, refer to the site's surrounding amenities such as schools, doctors, etc.

The lifecycle/embodied energy/carbon within the development. This is a significant aspect of refurbishment projects and should be acknowledged as part of the "actual" greenhouse gas emissions of the project.

Whatever is provided by way of a credit within the rating system should be assessed in terms of clear benefits and how these are derived and measured (i.e. deemed to satisfy otherwise you have significant variance in outcomes which results from the alternative drivers from some developers.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Innovation - minimal requirements maybe to include a social aspect to the project such as Green roof for community garden, recycling boxes for not for profit companies to use for fee etc.

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Not that I am aware of.

– **Tim Edwards, Australian Refrigeration Association**

Lack of detailed application experience to comment constructively.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

The performance paths are preferred.
Air change effectiveness should have a more appropriate DtS path.
Daylight calculator created and hand calculator refined to account for louvred, slotted or perforated shading devices that still admit daylight.
The use of the water calculator should be optional - AECOM have a number of water balance worksheets that capture water use more accurately.
Methodology for calculating benefits of a district system.

– **Nicki Parker, AECOM**

No

– **Haris Moraitis, BSE**

WGE to participate as part of TAG & IAG.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

No

– **Natasha Prasaek, pdt Architects**

Testing the achieved level of building fabric thermal performance could be included, such as:
- thermographic analysis of insulation installation
- degree of building sealing achieved to be measured through the use of blower door testing

There could be a option to feed this back into energy modelling to improve/validate energy credits

– **Sebastian Carr, Sustainability House**

Yes, particularly where one building owner develops similar buildings multiple times across different sites. In this case requirements could be prescriptive or DTS. E.g. for an industrial facility that includes T5 high bay lights with daylight control - 5 points awarded, solar hot water - 1 point awarded, solar system of x kW/m2 GLA = x points awarded, etc.
Performance commitments should be considered in as built ratings where the applicant has registered for a performance rating. For example - greenhouse gas credit could be awarded based on a commitment and short report where a performance rating is to be achieved.

– **Paolo Bevilacqua, Australand**

Q: Should the current system of weighting, whereby different states and territories have different weightings remain? If so, how could climate factors and power supply be accounted for within the rating too?

On balance, it is recommended that geographical weightings remain:

- Electrical carbon intensity differences should be accounted for better by taking into account the operation of the national grid rather than adopting State/Territory averages, particularly for major cities and towns.
- There should be consideration given to alternative weightings for rural or non-CBD project locations.
- Climate factors could be accounted for in the energy benchmarks.
- Water availability/climate could be taken into account in water efficiency benchmarks.
- Weightings should not be state based, but perhaps climate zone based. There should be perhaps only 2 or 3 in the country.
- Weightings applied to individual credits within categories should be removed:
- These weightings make it impossible to explain to clients why including something and getting an extra point can have no impact to the final rating. A point is a point, they say.
- Natural refrigerants provide opportunities for improved energy efficiency, lower GWP and future proofing against refrigerant scarcity due to legislation.

The following comments relate Green Star as a driver to the uptake of refrigerants with improved environmental performance; noting that probably the main driver, the HFC Refrigerant Levy, will be removed:

- For the Emissions credits relating to refrigerants to become a key driver for the use of NH3 the number of points available and the weighting of those points would need to dramatically shift.
- The Emissions credit points have a relatively low weighting (which means that "1 Emissions point" is actually only worth 0.8 "weighted points"). It is the weighted points that make up the score, so achieving two points only makes 1.6 weighted points. 60 are required for a 5 Star rating and so you can see that this isn't going to be a driver, particularly when energy is weighted 1 for 1 and a 5 Star NABERS energy result provides 10 weighted points.
- From experience, the GBCA have always been very reluctant to change the weightings. However, for refrigerants to become a driver this will need to occur, so feedback on this needs to include reference to both "points" and their "weighting".

Note: The GBCA have released a new series of "Innovation Challenges" which are worth additional points, all weighted 1 for 1 (so valuable). Could also therefore consider presenting the use of NH3 refrigerant, particularly in CBD commercial stock, as an "Innovation Challenge" and suggest that this alone is worth say 3 points. I think that might be attractive enough to get a developer interested in driving it forward.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

The difference in weightings between states are acceptable.

– **Owen Grace, Brookfield Multiplex**

Difficult to consider this one without more information. I would say that any attempt to streamline the system that disadvantages one state over another should be avoided at all costs.

– **Jake Hickey, Instant Waste Management**

One approach could be to weight a project according to which BCA climate zone it falls into. By doing so it can be easily determined which categories (such as Water or Energy) becomes the more important issue for a building in this area.

– **Oliver Grimaldi, Cundall**

Weightings should be removed.

– **Matt Fitzgerald, NDY**

The building code has climate zones and these should be reflected. While the greenhouse emission factors for electricity changes with state boundaries the transmission losses should also be considered and therefore reward given for onsite generation.

– **John Mabb, Gold Coast City Council**

Climate factors could be accounted for in the energy benchmarks. Water availability/climate could be taken into account in water efficiency benchmarks. Electrical carbon intensity differences should be accounted for better by taking into account the operation of the national grid rather than adopting State/Territory averages, particularly for major cities and towns.

– **Michael Shaw, Connor Pincus Group**

It is critical for Green Star to be based on a life cycle inventory data base that is valid and complete. Far greater emphasis is required to make this happen in association with ALCAS.

– **Tim Edwards, Australian Refrigeration Association**

Yes, this should be continued. Issues such as rain fall and the amount of water captured and used could be considered.

– **Mark Tickle, Grocon Group**

In theory the tool should aim to represent as far as practicable an Australian context including climate zones rather than being state based. There could however be the need for some 'exceptions' such as country vs metropolitan and sea side vs interior etc

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

In general, 'weightings' should remain for the different states, i.e. it is important (if not just politically if nothing else) that different states are acknowledged as having different issues. However, climate factors and power supply are already accounted for in the Ene methodologies.

– **Stephen Choi, Viridis**

Each credit should be worth the same amount, regardless of state. The latest GHG figures for each state should be used.

– **Nicki Parker, AECOM**

Yes
However Inn should also be weighted as 1 point in Energy weights more than 1 point which means more than 1 point in Inn which doe s not encourage the effort and the cost put in innovation challenges!

– **Haris Moraitis, BSE**

I think adjustment for location and climate is important for a robust tool. I think failure to consider this difference is a inherent risk. Climate for energy should be picked up through energy modelling process by placing restrictions on heating and cooling simultaneously and ensuring a focus an envelope applicable to the climate. However, this sort of assessment would need to be supported to in depth modelling guidelines and may be outside the capacity of some tools. Difference in utility mix can be picked up through CO2 conversion factors. In regards to water, I think climate is less significant as water is precious in all Australian region so weighting is not required. Perhaps a free running mode to assess envelope performance, in addition to conventional energy models.

– **Samantha Andersom, Inhabitgroup**

The tool should be based on the efficiency of the building's design with respect to site energy not source energy. Differences between states and changes to the carbon intensity of the grid over time distort the rating results and can penalize design teams based on factors outside of their control.

– **ESD Team, Australian Engineering Consultancy**

Weightings should be removed and replaced with 'bonus points' for regional priority credits.
If weightings are kept, they should not be based on states. WA spans the full spectrum of climates and yet the cold temperate south is treated the same as the hot, humid tropics. If weightings are required, they should be for climates / regions, not based on state borders. Additionally, country vs urban is a bigger difference than state vs state. 'Weightings' could be based on postcode rather than state. GHG emissions factors could be adjusted on postcode to incorporate the different electricity grids.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

I think this needs to be addressed on a credit by credit basis but apart from what has already been noted above I have nothing more to add in resolving this disparity.!
Credits should cover regional / climatic variations.

– **Natasha Prasaek, pdt Architects**

No. There is no need to weight the environmental impacts between States. The key State differentiator is GHG emissions coefficient of grid power which is accounted for in the GHG calculations anyway. There should however be consideration given to alternative weightings for rural or non-CBD project locations.

– **Director, ESD Consultancy**

A simplification of the weighting system would be welcome. However we recognise that approaches to sustainability are by definition tied to location, therefore this must always be the context to our rating systems.

We suggest that if weightings between categories are to be removed, points achieved in relevant credits should still be awarded in context with the local environmental impact. For example, the energy points use the grid conversion factor (kgCO2-e per kWh) from each state to find the correct emissions output, perhaps this approach could also be used for water (eg. impact / litre of water)

– **Sebastian Carr, Sustainability House**

Weightings shuold remain. Power usage shuodl only be considered on the basis of its supply. Green energy = points. Coal mines = no points

– **Douglas Rennie, Vaughan Constructions**

No. I agree with the approach outlined above with regional or climatic variations resolved within credits themselves.

– **Paolo Bevilacqua, Australand**

Unsure...

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Should one point in one category equal one point in another, i.e. no weightings?

Yes. The weighting system has caused confusion since its inception, and discourages the focus on the lower weighted credits.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Category weightings should remain.

– **Owen Grace, Brookfield Multiplex**

No

– **Jake Hickey, Instant Waste Management**

No, otherwise providing a recycle bin storage becomes as important as incorporating a rainwater harvesting system for example. Building projects will always need to apply cost factors when achieving credits, where the cheapest (and not necessarily the most sustainable) option will always be selected. There needs to be a clear weighting of categories and credits, or there needs to be a significantly higher number of credits awarded when achieving more sustainable outcomes.

– **Oliver Grimaldi, Cundall**

Yes

– **Matt Fitzgerald, NDY**

No.

– **John Mabb, Gold Coast City Council**

Yes to simplify the process

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

I disagree. Making all credits equally weighted is a weighting judgment in itself, and potentially not the correct one.

– **Michael Shaw, Connor Pincus Group**

Not qualified to comment but please make sure HVACR gains the recognition that its contribution to emissions and efficiency warrant.

– **Tim Edwards, Australian Refrigeration Association**

No

– **Mark Tickle, Grocon Group**

The tool should be representative of a range of environmental impacts and offer a balanced approach, not focused on single issues given the aspiration towards a triple bottom line outcome. Weighting may still be relevant, but not to the extent of skewing and marginalising some criteria which may be relevant, but maybe not 'fashionable' or the 'flavour of the month'.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Yes. It would simplify the whole thing and will stop people from imagining that the weightings are scientifically calculated, when they are not.

– **Stephen Choi, Viridis**

To simplify the process this could be acceptable provided significant categories have appropriate points attached to them (this is a from of weighting in any case)

– **Ross Davies, BlueScope**

Each credit should be worth the same amount, regardless of state.

– **Nicki Parker, AECOM**

No.

– **Haris Moraitis, BSE**

This would make the tracking process far simpler and significantly reduce the number of credits so it would seam a good solution, but it may disadvantage some project teams find it more difficult to achieve a rating due to the inherent location. ie more urban/rural areas.

– **Samantha Andersom, Inhabitgroup**

Yes

– **ESD Team, Australian Engineering Consultancy**

This would simplify the points system and make it much easier for clients to understand the impacts of changes to the design. Weightings are always one of the main confusions in implementing a Green Star project and in trading off options etc.

Instead of weightings, some of the 10 innovation points could be awarded as 'bonus' points for achieving credits of regional priority e.g. water/electricity reduction in the Pilbara gains an additional bonus point above a project in South West Qld etc.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Believe weightings are necessary as certain credits will be more critical / of greater importance in different building types and sizes - still not sure how weightings can be set / address this issue.

– **Natasha Prasaek, pdt Architects**

Yes - much easier to compare credits and communicate with clients and project team

– **Sarah Reid, Norman Disney & Young**

Yes. The weighting system has caused confusion since its inception, and discourages the focus on the lower weighted credits.

– **Director, ESD Consultancy**

No comment.

– **John Casey, Facility Management Association of Australia**

This is a matter for calibration (ie. what amount of environmental impact reduction defines a "point"?), but assuming there is some method to the number of points on offer per credit, then if there are no weightings points would be comparable across categories.

– **Sebastian Carr, Sustainability House**

No

– **Douglas Rennie, Vaughan Constructions**

Yes.

– **Paolo Bevilacqua, Australand**

Q: Do you agree with the beta testing approach to the development and testing? If not, please provide details of the alternative approach you would suggest.

Yes. Full consultation on technical details of rating tools during public review in April 2014 + Beta testing + 1st Year review to fix any errors + 2nd year full review.

Prefer Beta testing to PILOT phases. The PILOT phase is too long and has a tendency to "kill" interest in the tool. Better to have advanced Beta testing then release. You can maybe say that the first 10 projects registered get unlimited CIR's/TC's to help with the initial uptake and improve the early fix up of any tool issues.

Another approach would be full rollout with first 12-months allowing for rolling updates. 'Pilot" or 'Beta' ratings can dilute rating. The time taken to deliver this update has already been far too long

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Beta testing doesnt seem to make a lot of sense in tool development. Simply issue to key members and have them source industry feedback.

– **Owen Grace, Brookfield Multiplex**

'Beta Testing' is fine though there still needs to remain a benefit to those projects 'testing' the tool. There needs to reward and incentive to the projects that attempt the 'beta' version.

– **Oliver Grimaldi, Cundall**

This sounds like a reasonable approach.

– **Matt Fitzgerald, NDY**

Not sure but it seems intelligent to test on real projects.
Nothing beats real life application.

– **Anissa Farrel, Conrad Gargett Riddel Architecture**

Sound like a good idea.

– **Michael Shaw, Connor Pincus Group**

Bets testing is a must.

– **Tim Edwards, Australian Refrigeration Association**

Due to the number off and different types of projects it is very difficult to test all parameters and possibilities in beta testing. Consideration should be given to a continual improvement approach to credits which would include feedback

– **Mark Tickle, Grocon Group**

Some form of user acceptance testing will be required. It depends on how much is about transferring the existing hard copy material to an online format and how much is 'new' procedure.
Any system changes are always underestimated in terms of back office and user 'pick up'. I would caution against over promising and under-delivering.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

Yes.

– **Stephen Choi, Viridis**

Yes.

– **Ross Davies, BlueScope**

Suggest that the GBCA offer incentives for projects to beta test new credits. Also where the new credits are used, open dialogue, independent of the CIR/TC system be permitted.

– **Nicki Parker, AECOM**

Yes

– **Haris Moraitis, BSE**

I think this is a good proposal but the GBCA may need to consider options if enough teams do not elect to beta test the credits. I would think it important to ensure all credits as tested by multiple project teams before they are finalised.

– **Samantha Andersom, Inhabitgroup**

Yes

– **ESD Team, Australian Engineering Consultancy**

Yes - I was involved in the Public Buildings rating tool PILOT process and believe this is the best way to identify issues / shortcomings of a new tool. Is still quite a demanding and costly process to be involved at this level and GBCA needs to provide significant support and recognition to those that take part.

– **Natasha Prasaek, pdt Architects**

Support this approach

– **Sarah Reid, Norman Disney & Young**

Yes

– **Michael Kilmartin, Brookfield Multiplex**

Yes - prefer Beta testing to PILOT phases. The PILOT phase is too long and has a tendency to "kill" interest in the tool. Better to have advanced Beta testing then release. You can maybe say that the first 10 projects registered get unlimited CIR's/TC's to help with the initial uptake and improve the early fix up of any tool issues.

– **Director, ESD Consultancy**

Agree that beta testing is a better idea than traditional PILOT approach. However consider the timeline for release of the beta version unrealistic given minimal work has commenced on the tool infrastructure.

– **Sebastian Carr, Sustainability House**

Time is not important. A pilot phase to the entire industry over a few years would provide more real feedback.

– **Douglas Rennie, Vaughan Constructions**

I support a beta testing approach however this needs to be more advanced than the one completed for the Performance rating tool. For this new tool there will be a number of "real" projects that will be undergoing assessment at the time of development. These should be invited to participate in a "light pilot" process at no charge and be awarded their normal rating as well as a "light pilot" rating.

– **Paolo Bevilacqua, Australand**

Agree

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: Please provide your feedback or suggestions on any additional issues or opportunities that should be addressed or considered during the development and review of Green Star – Design & As Built

Whatever Green Star can do to encourage architects to adopt sustainable, climate-appropriate architectural responses at the early design stage should be pursued. Currently Green Star is encouraging the adoption of building services engineering technology solutions in the absence of good sustainable architectural design practice. More needs to be done to encourage real sustainable architecture.

Rating tools currently appear to be favouring on site co-generation or tri-generation or PV cells. It should be acknowledged, that a project could contribute to the building of wind farms or district energy or water plants in regional areas or in suitable locations, which can distribute that sustainable energy in more efficient way. Contributing in this way could be rewarded/recognised by the rating tool.

If someone is just willing to contribute to an innovations fund, then it should be awarded. Perhaps the GBCA could establish such fund where everyone could contribute to a good environmental cause and be rewarded for that.

– **Phil Wilkinson, Australian Institute of Refrigeration Air conditioning and Heating (AIRAH)**

Regional areas need to be given close consideration.

– **Jake Hickey, Instant Waste Management**

Can we learn from LEEDS?
Can we learn from BREEM?
Can we learn from LBC?
What about other GBC can they offer feedback

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

Whatever Green Star can do to force the hand of architects to adopt sustainable architectural responses at an early stage, these opportunities should be pursued. Currently Green Star is forcing the adoption of building services engineering technology solutions in the absence of willingness to adopt sustainable architectural design practice. Admittedly this could constrain developers (major financial backers of the GBCA) in the possible design responses at a particular site, but more needs to be done in Green Star to encourage real sustainable architecture. To use a car analogy the current situation is like manufacturing a car with a very high efficiency engine, while allowing the aerodynamics of the body's design to be pretty much ignored.

– **Michael Shaw, Connor Pincus Group**

There is a very large training requirement in HVACR. Given its contribution I would welcome the opportunity to provide a dedicated training program in this regard.

– **Tim Edwards, Australian Refrigeration Association**

No further comment.

– **Bill Lambie, Department of Planning, Transport and Infrastructure**

BAU issues ,unless legislated (e.g. in BCA), need to form a minimum requirement checklist.

– **Ross Davies, BlueScope**

Green Star LITE - Energy, Water, Waste only
Get university students to research in to credit targets and put more science behind the choice of target.
Accrediteed energy modellers as per New Zealand
Project recieves an extra credit if the submission is made available on the GBCA website.

– **Nicki Parker, AECOM**

Improving envelope performance and generating a better understand across the industry of inherent envelope performance.

– **Samantha Andersom, Inhabitgroup**

Contracts that recognise sustainability KPIs, for example the PPC2008 (uk)

– **Evan Atkinson, The Buchan Group**

The role of the GSAP needs to be discussed and agreed with the Industry.

We need to give the GSAP's the technical skill and tools to either play a valued role in the design process. This could be by enhancing their role to self-certify part or all of a submission, or by giving them the responsibility to promise at concept design, assess the detailed design and certify the builders works to achieve the outcome.

Otherwise, having a technical assistant spend months prepare a submission and add no real value to the project, is not a benefit to the sustainable outcome.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Thanks for the opportunity to comment / provide feed back.

– **Natasha Prasaek, pdt Architects**

There is a great opportunity to try to make Green Star more accessible, more affordable and more relevant. We consider the emphasis should be placed on simplicity in the approach of the tool, achieving real sustainability outcomes rather than rewarding "tick box" approaches, however still remain aimed at the top echelons of buildings in order to push industry leaders and create an aspirational target for the general market.

There is also an opportunity to make the cost & burden of ratings relevant to size, thereby increasing the relevance of Green Star.

We would like to know if / when detailed information will be released about the specific changes being proposed to credit content / structure.

– **Sebastian Carr, Sustainability House**

Government support through local policy and laws

– **Douglas Rennie, Vaughan Constructions**

I've probably said enough. In summary, I believe the proposed changes are essential to the sustainability of the Green Star tool. I commend the GBCA for listening to industry and embarking on such an ambitious program of works. I look forward to being part of this evolution of Green Star.

– **Paolo Bevilacqua, Australand**

Don't underestimate the markets desire to have an extremely high aspirational benchmark. If an organization has a desire to build a world’s best practice building it should be rewarded with acknowledgment.

– **Kevin Moore, Focus Energy Solutions and Airconomix**

Q: How else would you like to be informed of participate in the development of Green Star – Design & As Built? If so, pelase provide details below.

Currently engaged in the TAG.

– **Owen Grace, Brookfield Multiplex**

Workshops on the potable water in WA.

– **Jake Hickey, Instant Waste Management**

Website is always a good place to start

– **Anissa Farrell, Conrad Gargett Riddel Architecture**

I would greatly appreciate being involved in HVACR decision making and progress reporting.

– **Tim Edwards, Australian Refrigeration Association**

WGE to participate as part of TAG & IAG.

– **The Sustainability Team (Wood & Grieve Engineers), Wood & Grieve Engineers**

Sustainability House would like to make an expression of interest to submit a proposal for development of the online tool architecture. Specifically, our Compliance Processing System (CPS), a web based rule processor developed for NCC compliance reporting, would be well suited for the Green Star - Design & As Built tool.

– **Sebastian Carr, Sustainability House**

Pilot projects

– **Douglas Rennie, Vaughan Constructions**

Particular sectors need to be specifically targeted. A one approach suits all has not worked to date as key stakeholders in certain sectors have not been engaged and should be targeted more actively. E.g. most industrial tenants are not aware of Green Star as the landlords have been targeted. Unfortunately, in the industrial sector it is the tenants that have operational control of the properties and as a result there has been minimal uptake of the tool.

– **Paolo Bevilacqua, Australand**