QUALITY ASSURANCE GUIDE FOR GREEN BUILDING RATING TOOLS

Version 1.1 September 2015
Introduction

This guide has been developed as a part of the World Green Building Council (WorldGBC) Rating Tool Task Group contribution to furthering the development and implementation of green building rating tools globally. The guide aims to provide a basic outline for Green Building Councils, or other parties that wish to set up or develop nationally recognised green building rating tools. The guide draws from the experience of mature rating tools represented within the task group as well as the Building and Construction Authority (BCA), Singapore, internal product development and service design process as well as ISO 9001:2008, ISO 17020:2012 and ISO 17065:2012.

The objective of the quality assurance guide is for developing green building rating tools to pay due attention to the processes involved in creating and operating a locally run and locally adapted rating tool for the country in which they are operating. By following this guide, the rating tool can take the relevant steps required to being recognised as one of the many globally established green building rating tools.

The guide splits the quality assurance measure across two generic stages, namely:

1. Developing the green building rating tool;
2. Implementation and operation of the green building rating tool.

The development section delves into the criteria formation, stakeholder engagement and gaining the relevant industry and governmental support. The implementation and operation section refers to the management and delivery of the system to ensure there is the capacity to deliver and maintain the rating tool, including ensuring the independence of those assessing the projects. These two stages should not be seen as linear stages. There would be a constant feedback loop and the rating tool would need to develop and evolve over time.

The guide forms a working document and would be amended based upon users’ feedback and as our collective knowledge and experience grows.

A simple checklist is provided as a summary and should serve as the basis for a quality promise to the users of the rating tool.

Finally, WorldGBC would encourage all rating tools upon establishment to consider certifying their certification process under a relevant international third party quality assurance assessment.
Part 1: Developing the Rating Tool

This section addresses the basic quality assurance considerations that should be considered during the development of the green building rating tool. This development phase considers the drafting of the criteria (be it the first version or a revision of an existing rating tool), the stakeholder involvement of the criteria development, and the testing of the criteria. Part 2 discusses the quality assurance dealing with organisational structures, independence, transparency and the general processes of certification. Although these elements are both linked and interdependent on each other, for simplicity they have been separated in this guide.

1.1 General Quality Assurance Processes

The guide reinforces the process approach identified within ISO 9001 which should be considered when developing, implementing or improving the effectiveness of any process or product. The “Plan-Do-Check-Act” methodology is shown in figure 1 and will form the framework built upon in this guide.

![Diagram of Plan-Do-Check-Act methodology](adapted from ISO9001:2008 p8)

Such an approach emphasises the continual feedback loops required of any quality management system to measure the performance effectiveness of the rating tool criteria and certification processes, thus being able to make the necessary improvements.
1.2 Criteria Development

The criteria of the rating tool which the building is marked against forms the most visible aspect of the rating tool's operation and is critical to the legitimacy of the tool. Therefore the objectives and requirements of the rating tool need to be defined and agreed upon from the outset. There would need to be a balance between the requirements of the customer and the environmental intent of the rating tool to facilitate the successful uptake of the tool. Figure 2 outlines the approach that should be adopted in the design and development of the rating tool.

For the rating tool to develop effectively, it must be seen to be meeting the stakeholder's requirements in addition to the objectives of the organisation behind the tool. This means engaging the target customer(s) to ensure the rating tool will be used and thus would help shift the targeted market towards the goal of environmental sustainability. The rating tool must ensure that it follows the current regulatory requirements of the built environment of the country. In addition, due to the nature of building procurement, the relevant professional bodies would need to be engaged to provide advice on what is achievable within the market and their professional capabilities. Academic and research institutions can provide advice on various criteria to stretch the industry as well as aiding in gathering empirical evidence for criteria robustness.

Figure 2 – Product or service design process – adapted from the Building and Construction Authority (BCA).
The draft criteria and processes for the rating tool should be subject to public consultations and reviews at key development stages and thus gain validation within the local context from those parties that would be using the tool as well as the target customers.

In parallel with the criteria development, there would need to be the rating tool resources, development guides, method statements and technical documents that would need to be developed. These would detail the proposed assessment protocols covering how to apply for certification, what stage of the lifecycle the rating tool covers, what the assessment processes and procedures to comply with are, and the documentary evidences that would be required. These elements would be considered and tested through pilot projects and refined through the relevant feedback channels that should be in place.

In summary the criteria development should:

- Contain functional and performance requirements that are complete, unambiguous and not in conflict with each other or any statutory requirements;
- Make due reference to the applicable statutory and regulatory requirements including local codes or standards of best practice;
- Identify and learn from international precedents of similar rating tools or guides without breaching intellectual property rules;
- Respect other considerations that are context specific.

The questions to ask at the stage of tool development include:

- What stages of development will the rating tool cover – design and construction, or design, construction and operational performance?
- Will there be a validity period for the rating?
- What is the current market norm, and what are the minimum regulatory standards that apply?
- Who is the target user of the tool, and who will champion it and use it during the pilot phase?
- What building types will the rating tool cover?
- Will the tool focus on the rural or urban context, or be reflective of both?
- Does the country have large seasonal variations or geographic variations that are required to be taken into account and, if so, how can this be incorporated?
- What is the level of capability within the industry, and will training programmes be required as part of the tool’s implementation?
- What are the opportunities to maintain and develop existing local skills and incorporate the local vernacular within the tool?
- What are the applicable international best practices that can be applied, in terms of criteria formation, assessment processes, or technical guidance?
- Are there any unique social or economic considerations that need to be identified and acknowledged within the tool?
1.3 Engagement and Pilots

With the draft criteria formed, identifying who to engage to provide detailed feedback on the criteria, the assessment methodologies and processes is important. With this feedback, the tool can be developed and refined further. Those involved in the engagement and feedback should include professional bodies who represent the various interests of the construction industry. This would include, but is not limited to, architects, mechanical, electrical, civil and structural engineers, facilities and operations managers, contractors, developers and their representatives and various equipment and material suppliers. In addition, and in some situations, most critically it is vital to gain government support for the rating tool. With this support, the rating tool could be used as a lever for government to draw upon for important sites as minimum requirements, or as a planning policy tool for development, as a driver for incentives, or a government commitment for its buildings to lead the industry. This level of support takes time but will drive the scheme forward. At a minimum, the government must recognise the rating tool and should be engaged during the development.

Thorough testing of the rating tool through a variety of pilot projects allows the criteria to be tested and refined as well as the tool’s processes and procedures. The monitoring, measurement, inspection and tests of the criteria will identify if it meets the aims and intent that it was designed for. In addition through the use of real projects it will allow the rating tool body to calibrate the rating levels and identify if the industry and related professionals have the capability to deliver the projects to the various levels stipulated. The pilot projects thus provide feedback on whether the tool is realistic, and if it is calibrated to the requirements of the industry.

The subsequent review and evaluation of the rating tool based upon the engagement sessions and pilot studies should be conducted with representatives of the stakeholders concerned with the development of the criteria.

The pilot testing provides a chance to ensure that the rating tool body has the resources and processes in place to operate the scheme. It allows assessment of whether the rating tool is manageable for launch and implementation, including building up the assessor network and required training materials.

Engagement and Pilot Testing:

- Identifying key stakeholders is critical to advance the rating tool: these should include developers, architects, engineers, facilities managers, building users, main contractors, and suppliers.
- Having government recognition and support is critical to the rating tool’s long-term success.
- Pilot testing with a “champion” developer or customer will allow the rating tool to iron out its processes, ensuring there is enough capability both within the tool’s implementation body, and the industry that will be using it.
1.4 Certification

The processes of the rating tool (or certification) will be discussed in part 2. However, at the criteria development stages, they would have to be considered in terms of the grading of projects and to ensure the availability of resources upfront for the administration of the tool in operation. This includes the issued certificate or report requirements, inspection methods, assessment procedures and the necessary information contained within the criteria guidance or technical manual.

The inspection methods and procedures should be defined clearly within the rating tool’s requirements (or criteria). These guidelines should define unambiguously the requirements of those seeking to use the rating tool on how to comply and the evidence base required to demonstrate compliance. This level of detail can take the form of a technical manual, as criteria guidance notes and worked examples.

The rating tool report or certificate that is given to the client should include as a minimum the identification of the issuing body (i.e. the name and address of the GBC in charge of the rating tool), the date the certificate was issued, the identification of the project that has been rated (the name and address of the client and project) and the signature (or indication of approval) by authorised personnel and the rating result. For more guidance refer to ISO/IEC 17020:2012(E) section 7.4.
Part 2: Implementation and Operation of the Rating Tool

2.1 The GBC and Rating Tool Organisation

This guide is designed for the situation where the Green Building Council is the administrator of the rating tool. However, globally there are many different models of rating tool administration that are de-linked from Green Building Councils. These include being administered by government entities, by non-government organisations and professional research bodies. These other modes of green building rating tool administration can still follow the quality assurance guide to ensure independence, transparency and consistency. However, they may achieve these goals in a different manner.

With the GBC model, it is the GBC that is the administrator of the Green Rating Tool. They would look after all administrative issues, communicate results and be the issuing body for the certificate. The GBC may wish to form an internal rating tool development team to define the criteria and the tool’s procedures. This would follow the quality assurance requirements as discussed in part 1. The rating tool development team would provide guidance and clarification on criteria interpretation to the certification team (the assessors). In the GBC context, it is considered best practice to utilise
assessors that are a third party to the administration and development of the rating tool. Although in some instances this may not be possible, in which case it must be proven that the assessor would be independent from the project or from any lobbying interests that arise from GBC members. All assessors must be free from professional bias and free from commercial, financial or other pressures that would compromise the impartiality of the certification. As such a ‘quality assurance’ checking process (as discussed in 2.5) should be put in place for auditing the assessment reports and the documentary evidence submitted to ensure consistency and the proper implementation of the rating tool, thereby creating confidence in the tool.

2.2 Processes and Management

The management of the tool should have clear documentation explicitly stating the processes and the obligations of each party within the assessment. This is supplementary to the clear guidance of the rating tool’s criteria and assessment methodology.

The management system shall address the following, adapted from ISO/IEC 17020:2012(E) for green building rating tools:

- Policies, definitions of responsibilities of all parties involved;
- Operational method statement (administrative process manuals);
- Certification validity;
- Document management system (document controls and record systems);
- Quality controls and internal audits;
- Feedback framework, including communication channels and processes for corrective actions;
- Complaints and dispute resolution.

The GBC that is operating the rating tool must be a legal entity so it can be held responsible for its certification activities under contract. The GBC must have insurance and financial protection from any liabilities that may arise from the operation of the rating tool.

The rating tool’s specific methods and procedures should be articulated and fully documented. All written procedures, checklists and reference data should be available to the relevant parties, including the customers, involved with the rating tool.

The personnel involved with the rating tool operations should be technically competent, with experience within the built environment industry. The rating tool should be managed to ensure impartiality covering the licencing of the assessors, the rating tool’s organisational structure and administrative processes. The GBC needs to ensure there are a sufficient number of employees and externally licenced personal to manage the expected volumes of projects being conducted. The rating tool in its operational method statement should detail the employees’ roles, responsibilities and the authority that they command, as well as the monitoring procedures in place to ensure satisfactory performance and consistency.

The rating tool should articulate a document management system that governs the use of the submitted documentation, the storage of the documents, and the protection of the intellectual property and policies detailing the distribution controls. This includes physical copies and electronic formats. The management system should identify the required document retention time for record keeping: the retention period will be based upon project length, certification period and whether there are any recertification procedures. The document management system should identify and make
known to the client upfront the information that will be placed in the public domain. All other information submitted should be treated as confidential. Finally, the management system should detail the procedures of how the documents are to be disposed when no longer required.

2.3 Impartiality and Transparency

The core requirement of the implementation of a rating tool is to assume impartiality in the assessment. This means that personal interests, commercial, financial or other pressures or relationships between those being assessed and those assessing must be allowed to compromise the impartiality of the rating process. The use of third party assessors introduces a risk of reducing the impartiality if not managed correctly, therefore it is vital that the rating tool develops detailed guidelines for the assessment of projects, and that there is a quality control process.

The guidelines for safeguarding the impartiality should be formally documented for transparency, and so that they may be used to ensure that the stakeholders or other external forces are balanced in their representation in any rating, project review or development process. The guidelines should contain formal rules for the appointment of evaluation committees, the engagement of rating tool assessors, the competency requirements of the personnel, and the assessment review processes.

The competency requirements of the personnel involved in the administration, development and assessment of the rating tool and the appropriate training that they will receive should be stipulated. This should cover the relevant professional experience, level of qualifications, and continued professional development commitments. The guidelines thus make transparent as a part of the rating tool’s procedures the selection, training and licencing of the assessors.

For transparency, there should be an assessment review process conducted by person(s) who have not been involved with the assessment process. As such, each project should have an auditable trail of evidence that can be reviewed. These requirements would be captured in the rating tool’s document management record system of assessment reports. The reviews can be in the form of committee reviews, management reviews or independent internal audits. The decisions should be documented.

Impartiality:

- **The Rating Tool assessment personnel should not be involved in the building procurement or linked to any of the parties involved in the building procurement (design, construction, suppliers, installation or maintenance) of the project being rated.**
- **The rating tool personnel should be adequately qualified, be provided with training, and be subject to continuous professional development.**
- **Clear compliance guides and reporting tools should be utilised to ensure consistency is maintained between assessors.**
- **The GBC structure, with a large number of stakeholders who directly or indirectly fund the GBC’s activities, should have no influence on the outcome of a rating. They can, however, be part of a rating review panel.**
- **The GBC should provide adequate safeguards to ensure the independence of the rating tool assessment, covering the policies of the tool, commercial considerations, and the transparency of the rating process.**
2.4 Feedback Loops and Development

The rating tool is a product that like any other, that is developed for a customer who, in this case, is usually the building owner or developer. The rating tool, due to the complex nature of the built environment and the relationships with numerous stakeholders, will affect the work of the professionals involved in procurement, contractors, and suppliers, as well as policy makers, regulators and academics, in addition to the general population. Therefore, it is critical to identify and work with core stakeholders to continually develop both the rating tool content and the operational processes of the rating tool's implementation. This is shown in Figure 4 below.

![Figure 4: Rating tool feedback and continual improvements. Adapted from ISO 9001:2008 page 8.](image)

The rating tool should include a documented process for communication procedures, including the handling of enquiries, customer feedback and complaints. The feedback framework should include avenues for stakeholder feedback to be analysed and, in the case of customer complaints, should include the use of formal channels for dispute resolution.

To monitor the general perception of the customer, the use of open feedback channels such as customer and stakeholder surveys is recommended.

The feedback framework should incorporate procedures to review the rating tool and its management system at various intervals through studying:

- The results and conformity of the rating tool assessments to internal quality assurance processes;
- Customer feedback;
- Assessor/auditor feedback;
- Stakeholder feedback (professional, academic, user, government, etc.);
• Process performance – speed, efficiency, numbers of complaints, common issues and complaints;
• International benchmarking and peer reviews;
• Research and development studies;
• Status of corrective actions from previous reviews;
• Recommendations for process and/or criteria improvement from both inside the rating tool administration and from stakeholders and customers.

The result of the review should detail and implement the recommended actions to improve the processes of the rating tool, including the assessment methodology, the rating criteria, the management systems and general administration of the rating tool including the resource distribution.

2.5 Internal Audits

There is a need to ensure the rating tool criteria is being effectively and consistently implemented across projects and assessors. As such, the rating tool administrator (the GBC) should establish procedures for internal audits to verify that the rating tool is being effectively implemented. The audit criteria, scope, frequency and method should be defined to ensure safeguards at various steps and the processes communicated to parties.

The internal audit or assessment review process should be conducted by person(s) who are qualified and knowledgeable in the requirements of the rating tool and have not been involved with the assessment process of the work being audited. The outcome of the audit should be formally recorded and communicated. Where a nonconformity is identified, any actions or procedures that are required to rectify the non-conformance should be communicated. The results of the audits should be fully documented and form a part of the rating tool review process to aid with calibration measures amongst rating tool assessors, and to aid future criteria development and compliance interpretations.

Once the rating tool report has satisfied the internal audit, the result can be issued by the administrator of the rating tool (the GBC). There are numerous good examples of internal auditing policies in rating tools such as BRE Global Scheme Document SD5070: BREEAM and CSH: Operational Guidance, 2012.

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**Internal Audits (key ingredients – adapted from ISO/IEC 17020:2012(E) page 14):**

- The procedures should define the audit requirements that include the assurance of impartiality of the audit and the transparency of the documentation.
- The procedures should define the audit processes for identifying nonconformities, the actions to correct the nonconformities, the process of recording the results of actions taken, and the timeframe in which to implement the corrective actions.
- The internal audits should document the procedures and potential actions to prevent recurring nonconformities.
- Where analysis identifies common nonconformities, procedures for preventative action should be established and recorded. This forms a part of the feedback and review process.
QUALITY ASSURANCE CHECKLIST

- Define, implement, and maintain a quality management system in accordance with the principles of ISO 9001 / ISO 17020 / ISO 17065, or other internationally recognised guidance.

- Determine the interaction and relationship between the various parties involved with the rating tool, namely the users, the assessors/auditors, the scheme administrators, and the scheme developers, and articulate this clearly.

- Make readily available information regarding the rating tool, the criteria, the intent (aims) and the acceptable methods required to demonstrate compliance to achieve certification.

- Publish the management system documentation that details the responsibilities and obligations of the parties involved in the rating tool.

- Ensure the availability of resources necessary to manage the operation of the rating tool, from administration through to the assessors/auditors of the scheme.

- Have a comprehensive feedback loop for continual improvement and for customer service issues.

- Publish the quality policy and objectives of the rating tool, including a statement of commitment from top management.

- Determine the necessary competence of personnel to be involved in the various aspects of the rating tool, and ensure the personnel involved meet these requirements.
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With thanks to:
Spring Singapore for the provision of the ISO guides to aid the development of this guide.

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REFERENCES

ISO 9001:2008 Quality management systems – Requirements

ISO/IEC 17020:2012 Conformity assessment – Requirements for the operation of various types of bodies performing inspection

ISO/IEC 17065:2012 Conformity assessment – Requirements for bodies certifying products, processes and services