GBCI Credentialing Exam Development Process

GBCI stands among an elite group of personnel certification bodies in a range of industry sectors that have achieved ANSI accreditation since the program’s inception in 2003. ANSI accreditation is designed to increase the integrity, confidence and mobility of certified professionals and is based on the ISO/IEC 17024: 2012 Conformity assessment — General requirements for bodies operating certification of persons. Accreditation creates a valuable distinction for GBCI’s credentialing programs that extends through the service network – from certification body, to certification holder, to employer, to the public we serve. It validates the integrity of our processes under an international standard. It reinforces the superior standard and value of GBCI credentials and the professionals who hold them.

GBCI credentials provide employers, clients, policymakers and other stakeholders with assurances of an individual’s competencies, and are the mark of the most qualified, educated and influential green building professionals in the marketplace.

The exam body of knowledge

GBCI establishes the body of knowledge for its exams by first drafting a statement of purpose. The next step is to extend the original statement of purpose and define the content domain being considered. These job roles and responsibilities are identified by a Job Task Analysis (JTA) panel of subject matter experts (SMEs). This is performed by gathering as much information as possible considering the following:

- What is the purpose of the exam?
- Who is the intended audience?
- What is the content domain?
- What is the competency level?

This information is then expanded into a framework or exam specification document that describes the extent of the domain to be measured. This is done through a JTA, which determines exactly what a credentialed professional should know in order to perform the duties and responsibilities of a job.

The exam specification delineates the aspects (e.g., content, skills, processes, and diagnostic features) of the content domain to be measured and tries to answer the question, “What should a practitioner know and be able to apply in order to serve as a competent credentialed professional?” Job Task Analyses ensure that exams continue to meet the needs of stakeholders or whether changes may be needed to reflect changes in the industry.

In order to validate the functional areas and knowledge, skills and abilities that are incorporated into the JTA, panel participants complete quantitative ratings on the elements of the tasks and knowledge statements, including percent of work time and importance ratings for the functional areas. The averages of these weightings create the complete framework for the exam specifications and also the relative importance of and recommended number of items to examine each knowledge domain.

This final document (Exam Specifications) is then sent out to wider audience of SMEs for review and
additional weighting and comments. Once this survey is complete, it is reviewed by exam developers and GBCI staff and final recommendations are approved and finalized for the next step in the exam development process, item writing.

Exam item development

As with the JTA process, GBCI engages the help of qualified SME volunteers to participate in workshops on how to write valid exam items. Items drafted and submitted are reviewed by a different group of SMEs for review and feedback. During the item review meetings, items are reviewed, discussed, coded to exam specifications, validated to accuracy of content, edited, and, when needed, returned to the author for further refinement or research. Items may also be discarded if they are deemed either too simple or not congruent with the defined exam specifications. Each item must have a documented source material to validate the answer to the question.

Once the item bank is complete it is handed over to editors for review. Editors will check items to ensure they are free of spelling or grammatical errors, easy to comprehend and do not contain problematic, confusing language or bias in terms of culture, race and gender.

Beta testing

After the item writing and item review process, a beta exam is generated and published. This beta exam includes all of the newly developed test items. The entire bank of items is published and administered to a large group (at least 100 candidates per exam form) of sample candidates in a live test environment.

Once the beta exam has been administered to the target sample size, the results are collected and psychometricians perform an item analysis.

Item analysis

An Item Analysis is performed in order to measure the performance of each item on the beta exam. During the item analysis questions are asked about the performance of each and every item. These questions include:

- Are the items congruent to the specific knowledge statements established during the JTA?
- Are the items valid? Do they measure what they are intended to?
- Are the items reliable? Do they measure consistently?
- How long does it take each examinee to answer each item?
- What items are the most difficult?
- What items are the easiest?
- Are there any poor performing items that will need to be discarded?

Using the information that is gathered from this detailed analysis, poor-performing items are discarded and the high-performing items are assembled into a minimum of two (2) exam forms that match the exam specifications.

Each exam form must be psychometrically balanced to ensure the forms perform equally for candidates.
Each form must have the same level of difficulty, the same number of items for each domain knowledge statement, and should take the same length of time for a candidate to complete. Once the item analysis is complete, the statistically-proven passing score can be calculated and applied.

Each form of the exam pulls questions from an item bank. Each of the items varies in difficulty. Because a different mix of questions is used in each exam, the overall difficulty level is not fixed. Therefore, it is important to make sure that the varying difficulty level is reflected in the cut score to ensure that the exam is reliable. Exam reliability is concerned with the ability to reproduce results for each version of a given exam.

**Setting the cut score**

Cut scores are a critical component of any credentialing exam. A cut score represents the standard of performance that is set in the selection process with the objective of identifying qualified candidates. The passing score, or cut score is established through a cut-score study. The methodology used to set the cut score for GBCI exams is based on a modified Angoff Method. The modified Angoff Method uses expert judgments to determine the difficulty level of the exam. The easier the exam, the higher the cut score. Conversely, the more difficult the exam, the lower the cut score.

By taking into consideration the difficulty level of each form of the exam (gathered from the beta analysis), this method significantly increases the reliability of the exam. In setting the cut score, GBCI convenes a panel to set a cut score that will be representative of the performance of a minimally qualified candidate described in the exam specifications. Once the panel has confirmed that they have set the cut score appropriately, the final forms of the exam are published and distributed to test centers for live delivery.