

3) Preparing for your exam

Exam Timing

While you are permitted up to 2 hours to complete the LEED Green Associate, be prepared to commit 2 hours and 20 minutes to the entire process. Total exam time is broken out as follows: an optional 10 minute tutorial, the 2 hour exam, and an optional 10 minute exit survey.

Determining the Passing Score

A valid credentialing exam must have a defensible passing score. The cut score that separates candidates who have not mastered the content must be based on the minimum level of knowledge required as set forth by Subject Matter Experts. The performance of Beta testers was analyzed by professional psychometricians to gain statistics about item performance. The final cut score recommendation was then determined by a group of test development experts and volunteer Subject Matter Experts using the Angoff Method. The final cut score is approved by the GBCI Credentialing Steering Committee.

Specifications

The specifications for each section of the LEED Green Associate exam are organized to include a list of domains and their corresponding knowledge areas. This structure provides the volunteer Subject Matter Experts with a framework to guide the development of exam items to assess whether a candidate is capable of performing specific tasks and services.

The following outline provides a general description of exam content areas for the LEED Green Associate exam:

I. Synergistic Opportunities and LEED Application Process

- A. Project Requirements (e.g., site; program; budget; schedule)
- B. Costs (e.g., hard costs; soft costs; life-cycle)
- C. Green Resources (e.g., USGBC; Environmental Building News)
- D. Standards that support LEED Credit (e.g., American Society of Heating, Refrigeration and Air-conditioning Engineers [ASHRAE]; Sheet Metal and Air Conditioning Contractors National Association [SMACNA] guidelines; Green Seal)
- E. Credit Interactions (e.g., energy and IEQ; waste management)
- F. Credit Interpretation Rulings/Requests and precedents that lead to exemplary performance credits
- G. Components of LEED Online and Project Registration
- H. Components of LEED Score Card
- I. Components of Letter Templates (e.g., project calculations; supplementary documentation)
- J. Strategies to Achieve Credit
- K. Project Boundary; LEED Boundary; Property Boundary
- L. Prerequisites and/or Minimum Program Requirements for LEED Certification
- M. Preliminary Rating (target certification level)
- N. Multiple Certifications for Same Building (e.g., Operations & Maintenance for certified building new construction; core and shell and commercial interior; certified building in neighborhood development)
- O. Occupancy Requirements (e.g., existing building--building must be fully occupied for 12 continuous months as described in minimum program requirements)
- P. USGBC Policies (e.g., trademark usage; logo usage)
- Q. Requirements to Earn LEED AP Credit

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II. Project Site Factors

- A. Community Connectivity
 - 1. Transportation (e.g., public transportation; bike storage; fuel efficient vehicle parking; parking capacity; car pool parking; car share membership [e.g. Zipcar™]; shuttles; carts)
 - 2. Pedestrian Access (e.g.; circulation and accessibility such as cross walks; ramps; and trails)
- B. Zoning Requirements (e.g., density components such as calculations -site area and floor area ratio; construction limits; open space; building footprint; development footprint; specific landscaping restrictions)
- C. Development
 - 1. Heat Islands (e.g., non-roof; roof; Solar Reflectance Index [SRI]; emissivity; albedo; heat island effect; green roofs)

III. Water Management

- A. Types and Quality of Water (e.g., potable; graywater; blackwater; stormwater)
- B. Water Management (e.g., water use reduction through fixtures such as water closets; urinals; sinks; lavatory faucets; showers; harvesting; baseline water demand; calculations of Full Time Equivalent; irrigation) **IV.**

Project Systems and Energy Impacts

- A. Environmental Concerns (e.g., chlorofluorocarbon [CFC] reduction, no refrigerant option, ozone depletion, fire suppressions without halons or CFC's, phase-out plan, Hydrochlorofluorocarbons [HCFC])
- B. Green Power (e.g., off-site generated, renewable energy certificates, Green-e providers)

V. Acquisition, Installation, and Management of Project Materials

- A. Recycled Materials (e.g., pre-consumer, post-consumer, collection requirements, commingled)
- B. Locally (regionally) Harvested and Manufactured Materials
- C. Construction Waste Management (e.g., written plan; accounted by weight or volume; reduction strategies; polychlorinated biphenyl (PCB) removal and Asbestos-containing materials (ACM) management)

VI. Stakeholder Involvement in Innovation

- A. Integrated Project Team Criteria (architect, heating-ventilation-air-conditioning [HVAC] engineer, landscape architect, civil engineer, contractor, Facility Manager)
- B. Durability Planning and Management (e.g., material lifecycle, building re-use)
- C. Innovative and Regional Design (regional green design and construction measures as appropriate and established requirements)

VII. Project Surroundings and Public Outreach

- A. Codes (e.g, building, plumbing, electrical, mechanical, fire protection)

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References

The primary sources for the development of the core references are the LEED Rating Systems. The LEED Green Associate examination is designed to test your general knowledge of green building practices and how to support other professionals working on LEED projects. LEED Reference Guides are published by the U.S. Green Building Council and are available for purchase at www.usgbc.org/store > Publications.

Primary References*

- [LEED for Operations & Maintenance Reference Guide-Introduction](#) (U.S. Green Building Council, 2008)
- [LEED for Operations & Maintenance Reference Guide-Glossary](#) (U.S. Green Building Council, 2008)
- [LEED for Homes Rating System](#) (U.S. Green Building Council, 2008)
- [Cost of Green Revisited](#), by Davis Langdon (2007)
- [Sustainable Building Technical Manual: Part II](#), by Anthony Bernheim and William Reed (1996)
- [The Treatment by LEED® of the Environmental Impact of HVAC Refrigerants](#) (LEED Technical and Scientific Advisory Committee, 2004)
- [Guidance on Innovation & Design \(ID\) Credits](#) (US Green Building Council, 2004)
- [Guidelines for CIR Customers](#) (US Green Building Council, 2007)

Ancillary References

- [Energy Performance of LEED® for New Construction Buildings: Final Report](#), by Cathy Turner and Mark Frankel (2008)
- [Foundations of the Leadership in Energy and Environmental Design Environmental Rating System: A Tool for Market Transformation](#) (LEED Steering Committee, 2006)
- [AIA Integrated Project Delivery: A Guide](#) (www.aia.org)
- [Review of ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality](#), by Brian Kareis (www.workplacegroup.net)
- [Best Practices of ISO - 14021: Self-Declared Environmental Claims](#), by Kun-Mo Lee and Haruo Uehara (2003).
- [Bureau of Labor Statistics](#) (www.bls.gov)
- [International Code Council](#) (www.iccsafe.org)
- [Americans with Disabilities Act \(ADA\): Standards for Accessible Design](#) (www.ada.gov)
- [GSA 2003 Facilities Standards](#) (General Services Administration, 2003)
- [Guide to Purchasing Green Power](#) (Environmental Protection Agency, 2004)
- [Green Building & LEED Core Concepts Guide](#), 1st Edition (US Green Building Council, 2009) (available for purchase at www.usgbc.org/store > Publications)

You should also be familiar with the content of the U.S. Green Building Council's Website, www.usgbc.org, including but not limited to LEED Project Registration, LEED Certification content, and the purpose of LEED Online. The U.S. Green Building Council's LEED Website, www.usgbc.org/leed, also has free access to LEED Rating Systems, LEED Reference guide Introductions, and Checklists beyond those listed above.

You will also find a list of abbreviations and acronyms in the *LEED for Homes Rating System* on pages 105–106 and a helpful glossary of terms on pages 107–114.

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Exam Information

A LEED Green Associate is an individual who has passed the exam and possesses the knowledge and skill to understand and support green design, construction, and operations.

GBCI contracts with a test development firm to develop and deliver the LEED professional credentialing exams. The development of a valid exam begins with a clear and concise definition of the knowledge, skills and abilities needed in order to successfully serve as a LEED Green Associate. Psychometricians work with experts in the green building industry to identify critical components of the roles and responsibilities of an individual supporting the LEED certification process.

All LEED professional credentialing exams are valid and reliable. Validity means that the exam is able to measure that which it is supposed to measure. Reliability is an index of how accurately the exam measures a candidate's skills. A test must be both valid and reliable to be considered a well-developed exam. The LEED Green Associate exam accurately assesses each candidate's ability to carry out the required responsibilities of a LEED Green Associate.

Exam Item Development

Extensive test statistics are calculated in the process of determining test validity and reliability. This includes careful analysis of every item on all LEED Professional Credentialing exams. Exam questions are developed and validated by global work groups of Subject Matter Experts, are referenced to current standards and resources, are developed and monitored through psychometric analysis, and satisfy the test development specifications of a job analysis.

All LEED Professional Credentialing exams assess candidates' abilities at three hierarchical cognitive levels: Recognition, Application, and Analysis. It is not necessary to know an item's cognitive level, and an item's cognitive level may not be obvious. It is only important that candidates understand that these different cognitive levels are assessed so that candidates can demonstrate both the breadth and depth of their knowledge as it pertains to the test specifications. The following definitions do not represent strict divisions between item types but are meant to be explanatory guidelines so that candidates understand the various levels at which they may have to demonstrate knowledge.

- **Recognition Items:** These items assess a candidate's ability to recall factual material that is presented in a similar context to the exam references.
- **Application Items:** These items provide the candidate with a novel problem or scenario that the candidate can solve using familiar principles or procedures described in the exam references.
- **Analysis Items:** These items assess a candidate's ability to break the problem down into its components to create a solution. The candidate must not only recognize the different elements of the problem, but must also evaluate the relationship or interactions of these elements.

Exam Format

The LEED Green Associate exam is designed to measure your skills and knowledge against criteria developed by Subject Matter Experts and to assess your knowledge and skill to understand and support green design, construction, and operations. The LEED Green Associate exam is comprised of 100 randomly delivered multiple choice questions and must be completed in 2 hours; total seat time for the LEED Green Associate exam will be 2 hours and 20 minutes including a tutorial and short satisfaction survey.