



CANDIDATE HANDBOOK

LEED AP Building Design + Construction

Updated November 2012

LEED® AP Building Design + Construction Candidate Handbook updated November 2012.



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Information in this Handbook represents current policies and procedures for a LEED professional credentialing exam. Information in this Handbook supersedes information contained in any previously published information.



This booklet may not be brought into the examination.



Eligibility standards, exam content, exam standards, fees, and guidelines are subject to change.

Please read and understand the entire Handbook including all policies, procedures, and consequences.

ABOUT THE GREEN BUILDING CERTIFICATION INSTITUTE

The Green Building Certification Institute (GBCI) is a third-party organization that provides independent oversight of professional credentialing and project certification programs related to green building. GBCI is committed to ensuring precision in the design, development, and implementation of measurement processes for green building performance (through project certification) and green building practice (through professional credentials and certificates).

Established in 2008 to administer certifications and professional designations within the framework of the U.S. Green Building Council's LEED® Green Building Rating Systems™, GBCI continues to develop new programs and offer the marketplace validation that building certifications and professional designations have met specific, rigorous criteria.

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THREE THINGS EVERY CANDIDATE SHOULD KNOW

1. Ensure your given name (first name) and surname (last name) in My Credentials matches the given name and surname on the identification you will present at the test center. **If the names do not match, you will not be allowed to test and you will forfeit the exam fee.** If you need to change your name, please contact GBCI at gbc.org/contact > Name Changes or at 1-800-795-1746, within the US, or at 1-202-828-1145, outside the US.)
2. For USGBC members: to receive member pricing for your exam, you must have linked your member status to your USGBC account (usgbc.org > Account > Membership) prior to registration. For CaGBC members: to receive member pricing for your exam, you must have linked your member status to your My Credentials account (by calling GBCI customer service at +1-202-828-1145) prior to registration. The member discount is not automatically applied retroactively to exam registrations that are submitted under non-member pricing.
3. To change or cancel your exam appointment you must do so through Prometric no later than midnight three days before your scheduled examination. All exam appointments cancelled/rescheduled 30 days or less before the examination date are charged a \$50 fee. If you do not receive a new confirmation number from Prometric, contact them immediately to confirm that your appointment has been successfully cancelled/rescheduled.

APPLYING FOR YOUR EXAM

Applying for an Exam

1. Log in to [My Credentials](#). If you do not have an account, select “First Time Here?” to create one.
2. Verify that candidate name you enter in [My Credentials](#) matches the name on the ID you will present at the test center. Contact GBCI credentialing staff at gbc.org/contact > Name Changes to update your name.
3. Select “Apply for a credential exam” from your Current Options. (If you do not see this option, it means that you are not eligible for the exam. **You may not have more than one active application at a time.** [Contact customer service](#) if you have any questions.)
4. Follow the instructions on the screen to complete the application.
5. You will receive an email within one business day containing your Eligibility ID and instructions for scheduling your exam. After you receive the e-mail, log onto prometric.com/gbc and enter your Eligibility ID number to schedule your exam date and location.

Eligibility Requirements

To take the LEED AP exams, you must have previous experience, within three years of your application submittal date, on a LEED-registered or certified project. This work experience must be documented through LEED Online* or in the form of a letter of attestation from a supervisor, client, or project manager and must describe your involvement on the project as a consultant, public or private sector personnel who review projects pursuing LEED certification as part of an approval process, contracted worker, member of the LEED Project Team, LEED Homes Provider, LEED Reviewer, LEED for Homes Green Rater, or staff member of a Certifying Body (CB).

All candidates must also agree to the [Disciplinary and Exam Appeals Policy](#) and credentialing maintenance requirements, must submit to an application audit, and be 18 years of age or older.

Audits

Five to seven percent of all applications will be reviewed; you will be notified immediately if you are chosen for

an audit and will be notified of your eligibility within 7-10 business days.

GBCI also reserves the right to conduct an audit at any time (including prior to application submission and after accreditation) of all current and past exam applications. Any information contained in a My Credentials account may be audited and a request for further documentation of any information or claims submitted by the LEED Professional may be made at any time. GBCI further reserves the right to take disciplinary or legal action (including but not limited to revocation of credential(s)) in the event that any conduct discovered during such an audit violates the LEED Professional [Disciplinary and Exam Appeals Policy](#), GBCI policy, and/or law.

Special Testing Accommodations

If you have a documented disability that would prevent you from taking a LEED professional exam under normal testing conditions, you may request reasonable accommodations as required by law. Reasonable accommodations are granted to ensure that every candidate has the opportunity to test on a level field with other candidates, but not to provide any candidate with an unfair advantage over other candidates. Accommodation requests are considered on a case by case basis.

Prometric certifies that it shall comply with the provisions of the Americans with Disabilities Act (ADA). Under the ADA, entities that administer standardized examinations must offer the examinations in a place and manner that is accessible to candidates with disabilities. This may require reasonable modifications to the manner in which the test is administered. Prometric will provide candidates reasonable auxiliary aids and services, except where it may fundamentally alter the validity of the exam results. Available accommodations include, but are not limited to, a reader, a scribe, and extended testing time.

If you require special accommodations to sit for a LEED professional exam, you must indicate this on your Exam Application. To request accommodations, you and your health care provider will each need to complete one form to document the disability and the need for accommodation. You must submit the Candidate and Provider Forms with your application. [Download the Candidate and Provider forms](#). These two forms require you to provide the following information:

- Diagnosis and nature of the disability
- Name of tests used to evaluate the condition
- Length of the condition
- Date you were last seen by your health care provider
- Specific suggested accommodation(s)

There is no additional charge for special accommodations. Each request will be evaluated individually. GBCI credentialing staff will review this documentation within 30 days of the submittal of your application and, if approved, will alert Prometric of the necessary accommodations. Candidates who request special testing accommodations for a LEED exam will not be able to schedule an appointment with Prometric until their request is approved and arrangements have been made with Prometric. Candidates will be contacted by email regarding the approval status of their special testing accommodations request.

Application Period

An approved application is valid for one year from the approval date. Candidates are allotted three registrations per exam section per one-year application period. This means that a candidate has three chances to meet the minimum competency scaled score of 170 for any given LEED professional credentialing exam section while their application is active. After an application expires, candidates are required to wait 90 days before submitting a new application to GBCI.

Application Extension

Candidates may request an extension of the one year application period for LEED Professional Credential and Certificate programs due to extenuating circumstances. GBCI will review requests for an extension of the one year application period on a case-by-case basis. Candidates must submit a written request which includes the basis for the request and supporting third party documentation or attestation to GBCI at gbc.org/contact or by mail. GBCI will only consider requests received before the application expires, but no earlier than 30 days before the end of the application period. Extensions are granted only once per application with a maximum of a six month extension. GBCI reserves the right to decline a request for an application extension for any reason.

Exam Scheduling

1. Go to prometric.com/gbc to schedule an exam appointment.
2. Enter your Eligibility ID to proceed with selecting a test site, scheduling a date and time and entering payment information.
3. When the exam appointment is scheduled, you will receive a confirmation number onscreen and from Prometric through an email.
4. Record your confirmation number. You will need this confirmation number to confirm, cancel, or reschedule your appointment through the Prometric website, prometric.com/gbc. You will not be able to confirm, reschedule, or cancel with your Eligibility ID.
5. Once you have scheduled an exam, please print your confirmation notice from Prometric.

Keep your confirmation notice for any communication with Prometric about your exam. If you do not receive a confirmation email from Prometric, please call Prometric customer service. Please see the Contact Information section for your local Prometric phone number.

Fees

Fees cover the costs of testing center coordination and staffing, examination development, review, production and scoring. Prometric accepts electronic credit or debit card payment methods. Prometric does not currently accept checks for payment for the LEED Professional exams. Prometric charges the exam fee at the time of scheduling.

Application fee: \$100

The exam fee for the LEED AP, per appointment, is:

For combined exam (both part 1, the LEED Green Associate exam, and part 2, the LEED AP specialty exam):

- USGBC or CaGBC national members: \$300 (Non-members: \$450)

For the LEED AP specialty exam only:

- USGBC or CaGBC national members: \$150 (Non-members: \$250)

Please note that candidates cannot change the credit or debit card information for the payment of a scheduled Prometric appointment without cancelling the appointment with Prometric first.

Veterans Administration Benefits

The LEED Professional Exams have been approved by the U.S. Department of Veterans Affairs for reimbursement. The VA, in accordance with the G.I. Bill, has agreed to reimburse veterans, eligible dependents, and reservists for

the cost, up to \$2000, of any of the LEED Professional Exams administered by the GBCI since December 3, 2008.

[Learn more.](#)

Failing to Appear for a Scheduled Exam

If you are absent from an exam appointment that you were scheduled to attend, and you did not reschedule or cancel according to the policy, or if you are denied access to an appointment due to a failure to present proper identification, you must contact GBCI or Prometric to reactivate your Eligibility ID so that you may schedule another appointment using the same Eligibility ID. Candidates who are denied entrance to the appointment or who miss a scheduled exam appointment are responsible for all exam fees.

All candidates seeking excused absences based on an emergency situation must contact Prometric's candidate care within 10 days of the original examination date. Please see the Contact Information section for your local Prometric phone number. Prometric will require that you fax documentation of the emergency in order to excuse the absence. Inclement weather is not acceptable as an excused absence unless the test center was closed (see next page). If, on the day of your exam, you are unable to attend the examination for which you are scheduled, you may be excused and be allowed to retest without charge for the following reasons:

- Documented illness, either yourself or immediate family member
- Death in the immediate family
- Disabling traffic accident
- Court appearance or jury duty
- Military duty

Inclement Weather or Other Emergencies

Test administration will be delayed or cancelled only in emergencies. If severe weather or a natural disaster makes the test center inaccessible or unsafe, the test administration may be cancelled. In the event of test center closings due to inclement weather, candidates will be contacted by Prometric to reschedule their appointment free of charge.

Bulk Scheduling

To schedule five or more candidates at one time, you may use Prometric's Bulk Registration process. First, candidates should individually apply and register for the exam at [My Credentials](#). (See Applying for an Exam and Registering for an Exam.)

Go to prometric.com/gbci, select "Schedule Exam", select your location, and click Bulk Registration. Enter each candidate's Eligibility ID number and provide payment information to pay the exam fees in bulk. Alternatively, call Prometric's Bulk Registration line and provide each candidate's Eligibility ID number over the phone. Please see the Contact Information section for your local Prometric phone number.

THE EXAM

Exam Information

GBCI contracts with a test development firm to develop and deliver the exam. 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 AP. 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 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 AP exam accurately assesses each candidate's ability to carry out the required responsibilities of a LEED AP.

Exam 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 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 exams assess candidates' abilities at three hierarchical cognitive levels: Recall, Application, and Analysis.

- Recall 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 AP exam is comprised of two parts, each part contains 100 randomly delivered multiple choice questions and each part must be completed in 2 hours. Total seat time for the LEED AP exam will be 4 hours and 20 minutes including a tutorial and short satisfaction survey.

Exams are comprised of both scored and unscored items. All items are delivered randomly throughout the exam and candidates are not informed of an item's status, so candidates should respond to all the items on the exam. Unscored items are placed in an exam in order to gather performance data to inform whether the item should be scored on future exams.

The Exams are computer-based, but candidates do not need extensive computer experience to take a test. Exam questions and answer options are displayed on screen. The computer records your responses and times your exam. You are able to change your answers, skip questions, and flag questions for later review.

In the event that a software or hardware problem occurs before or during the test, please wait to see if the test center administrator, with assistance from Prometric technical support, can resolve the problem. In the event a computer must be restarted, the computer software has been designed to suspend testing time until the computer is operating again. If your exam cannot be administered because of technical difficulties, your exam will be rescheduled at your earliest convenience.

While taking your exam, you may come across test items on which you would like to leave comments. As you

are not allowed to leave the test center with any notes from the exam, please make sure to add your comments in the item itself by clicking on the Comment button at the bottom of the computer screen and at your earliest convenience, inform GBCI through gbc.org/contact that you have left comments on your exam so that we can review them and respond to you.

Be prepared to commit 4 hours and 20 minutes to the entire process. Total exam time is broken out as follows: an optional 10 minute tutorial, the 2-hour LEED Green Associate exam, the 2-hour Building Design + Construction specialty exam, and an optional 10 minute exit survey. GBCI encourages candidates to participate in the tutorial in order to familiarize themselves with the exam format and the computer testing environment. Be aware that if a candidate exits the exam session, the exam cannot be restarted and the exam session and fee are forfeited.

Exam Language

The primary language for the exam is English. GBCI also offers translation aids in French, Spanish, Brazilian Portuguese, and Chinese for the LEED Green Associate exam and in French for the LEED AP BD+C exams. The use of translators or foreign-language dictionaries during the examination will not be permitted. Additional time to complete the exam will not be provided.

Specifications

The following outline provides a general description of exam content areas for the LEED AP BD+C exam.

Exam Part 1: LEED Green Associate Exam

The first part of your exam is the LEED Green Associate, which tests your general knowledge of green building practices for both commercial and residential spaces and both new construction and existing buildings as well as how to support other professionals working on LEED projects.

I. Synergistic Opportunities and LEED Application Process

- F. Project Requirements (e.g. site; program; budget; schedule)
- G. Costs (e.g. hard costs; soft costs; life-cycle)
- H. Green Resources (e.g. USGBC; Environmental Building News)
- I. 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)
- J. Credit Interactions (e.g. energy and IEQ; waste management)
- K. Credit Interpretation Rulings/Requests and precedents that lead to exemplary performance credits
- L. Components of LEED Online and Project Registration
- M. Components of LEED Score Card
- N. Components of Letter Templates (e.g. project calculations; supplementary documentation)
- O. Strategies to Achieve Credit
- P. Project Boundary; LEED Boundary; Property Boundary
- Q. Prerequisites and/or Minimum Program Requirements for LEED Certification
- R. Preliminary Rating (target certification level)
- S. 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)
- T. Occupancy Requirements (e.g. existing building — building must be fully occupied for 12 continuous months as described in minimum program requirements)
- U. USGBC Policies (e.g. trademark usage; logo usage)
- V. Requirements to Earn LEED AP Credit

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; 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)

Exam Part 2: BD+C Specialty Exam

The second part of your exam is the LEED BD+C specialty exam which tests the knowledge and skills necessary to participate in the design process, to support and encourage integrated design, and to streamline the application and certification process.

I. Project Site Factors

- B. Considerations for site selection
 1. Land issues (e.g. farmland; floodplains [100 year; FEMA maps]; wetlands; water bodies; parkland; brownfield; open space preservation; topography; minimization of disturbed area)
 2. Plants and animals (e.g. endangered and imperiled species; native adaptive plants; invasive plant species; Federal wildlife Protection Act; Environmental Protection Agency [EPA] policies; heritage and champion trees; habitat restorations; nesting areas)Community connectivity- services (nearby amenities; natural amenities; water trails; opportunities for joint use of facilities such as allowing community access to a school playing field)
- C. Development
 1. Building and land (e.g. open space; building footprint; development footprint; specific landscaping restrictions such as use of pollen-free plant materials; visual and/or physical connection to landscape/

garden/nature; security requirements that influence site issues such as in healthcare-Alzheimer's; psychiatric patients)

2. Lighting (e.g. light pollution; interior and/or exterior light trespass; lighting zone; maximum candela; lighting power densities)
- D. Climate conditions (e.g. seasonal changes; solar availability & clear sky data such as sun path diagrams/charts; day lighting and lighting on streetscapes; precipitation data such as annual averages; temperature such as heating and cooling degree days; relative humidity)

II. Water Management

- A. Water treatment (e.g. techniques such as packaged biological removal systems, constructed wetlands, and high efficiency filtration systems)
- B. Stormwater (e.g. rate: imperviousness, pre-development and post-development discharge rate, retention and detention)
- C. Irrigation demand (e.g. evapotranspiration, landscape coefficient such as plant species factor, planting density, microclimate factor)

III. Project Systems and Energy Impacts

- D. Energy performance policies (e.g. Minimum Energy Performance: building simulation model; Carbon footprint; intensity-BTU/SF; emissions reductions; building orientation; ASHRAE Advanced Energy Design guides)
- E. Building components (e.g. building envelope; HVAC; service water heating; power; lighting; other equipment; lighting power density; receptacle load; insulation; windows)
- F. On-site renewable energy (e.g. wind; solar; passive solar; geothermal; biomass; low impact hydro; biogas)
- G. Third-party relationships--requirements (e.g. prescriptive and performance requirements for Commissioning Agent; design and submittal review; systems manual; follow-up by Commissioning Agent; third party duty requirements)
- H. Energy performance measurement (e.g. measurement verification, building energy simulation vs. metering devices, payment accountability, capability vs. plan; International Performance Measurement and Verification Protocol [IPMVP])
- I. Energy tradeoffs (e.g. integration and identification of tradeoffs in energy savings between mechanical, electrical, and building components; lighting design that considers energy use reduction and lighting power density relationship with daylighting)
- J. Sources (e.g. central plants; distributed energy (cogeneration); alternative fuels such as biodiesel, H2 fuel cells, wood-chip gasification)
- K. Energy usage (e.g. building schedules; occupancy and off-hours; indoor/outdoor air usage rates and impact on energy performance)

IV. Acquisition, Installation, and Management of Project Materials

- A. Building reuse (e.g. roof, walls, pre-planned conversion of school building to office use)
- B. Rapidly renewable materials (e.g. bamboo flooring, cotton batt insulation, wheatboard, cork, wool)
- C. Material acquisition (e.g. certified wood; chain of custody procedures)

V. Improvements to the Indoor Environment

- D. Minimum ventilation requirement (e.g. indoor air quality; natural ventilation; mixed mode ventilation)
- E. Tobacco smoke control (e.g. prohibiting smoking; designated smoking area; negative pressure; residential units; weather-stripping; blower door test)
- F. Air quality (e.g. carbon dioxide (CO₂) concentration, densely occupied spaces vs. non-densely occupied spaces; HVAC system integration/automation; air filtration [particulate matter reduction practices])
- G. Ventilation effectiveness (e.g. heat recovery strategy; breathing zone; exfiltration/infiltration; breathing zone outdoor airflow, natural ventilation design)
- H. Indoor air quality (IAQ)
 1. Pre-construction (e.g. development of IAQ Management Program; outdoor air ventilation; ventilation systems design for the reduction in indoor air pollutants)

2. During construction (e.g. protection of absorptive materials from moisture damage; HVAC protection during construction, handling HVAC operation during construction; moisture control including indoor moisture issues and dehumidification practices; mold prevention and/or remediation)
3. Before occupancy (e.g. HVAC system capability; flush-out procedures, timing requirements for flush-out or testing, air quality testing, contaminant concentrations)
4. During occupancy (e.g. development and implementation of a green cleaning policy; use of products and materials, equipment, procedures; integrated pest management)
- E. Low-emitting materials (e.g. adhesives and sealants; paints; coatings; carpet; composite wood and agrifiber products; VOC's; urea-formaldehyde; VOC budget option, VOC emissions, VOC content)
- F. Indoor/outdoor chemical and pollutant control (e.g. entryway systems; walk-off mat contract for cleaning requirement; hazardous gas mixing; pressurize room; door closers; deck-to-deck partitions; MERV 13 for regularly occupied spaces; radon protection, reduction practices for radon gas, other soil gas contaminants)
- G. Lighting controls (e.g. individual occupant control; task lighting; dual levels; occupancy sensors; daylight sensors; building automation system; window and floor area, geometry factor, visible transmittance, shading devices, light shelves, skylights)
- H. Thermal controls (e.g. individual occupant control of thermal comfort; operable windows; thermostat; diffusers; radiant panel options; building automation system; thermal comfort design, written plan for corrective action; distribution of space heating and cooling)
- I. Views (e.g. through interior glazing, vision glazing; glare effects on individuals such as patients, students)
- J. Types of building spaces (e.g. regularly occupied spaces; individual occupant work spaces; group multi-occupant spaces, classroom and core learning spaces)

VI. Stakeholder Involvement in Innovation

- A. Design workshop/charrette (meeting on integrated green strategies)
- B. Ways to earn credit (e.g. innovative methods; building as a teaching tool; tailor lighting color to task; Green educational program; residential construction methodologies; tenant guidelines; documentation of sustainable building costs impacts)
- C. Education of building manager (development of a building manual and a demonstration walkthrough of the green features in the building)

VII. Project Surroundings and Public Outreach

- D. Infrastructure (e.g. access information to sewer and water supply service areas; municipal utilities such as availability and capacity of existing lines, future demand, power & water management district)
- E. Zoning requirements (e.g. land use change amendments; public hearings)
- F. Government planning agencies (e.g. Environmental Protection Agency [EPA], local, state, federal, USDA, Public Health Code)
- G. Reduced parking methods (e.g. shared parking facilities, carpools, car-share, bike secure parking)
- H. Transit oriented development (e.g. access to train, bus, multi-modal interfaces)
- I. Pedestrian oriented streetscape design (bike & pedestrian connectivity, vehicular traffic interface, bike lanes)

References

The primary sources for the development of the LEED Professional Exams are the LEED Rating Systems. The following list of references are not meant to be comprehensive. When combined with the test specifications, the candidate has the material from which the exam is based.

Exam Part 1: LEED Green Associate Exam

(designed to test the general knowledge of green building practices and how to support other professionals working on LEED projects) **References***

- Green Building & LEED Core Concepts Guide, 2nd Edition** (available at usgbc.org/store)

- [Green Office Guide: Integrating LEED Into Your Leasing Process, Section 2.4](#) (2009)
- [LEED 2009 for New Construction and Major Renovations Rating System](#) (2009)
- [LEED for Existing Buildings: Operations & Maintenance Reference Guide, Introduction](#) (2009)
- [LEED for Existing Buildings: Operations & Maintenance Reference Guide, Glossary](#) (2008)
- [LEED for Homes Rating System](#) (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](#) (2004)
- [Credit Interpretation Rulings](#) (gbci.org)
- [Guide to Purchasing Green Power](#) (U.S. EPA, 2004)
- [LEED 2009 for Operations & Maintenance Rating System](#) (2009)
- [LEED 2009 Minimum Program Requirements](#) (2009)

Exam Part 2: LEED AP BD+C Specialty Exam

This exam is designed to test the knowledge and skills necessary to participate in the design process, to support and encourage integrated design, and to streamline the application and certification process. You should also be familiar with the content of the U.S. Green Building Council's Website, usgbc.org, and GBCI's website, gbci.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 website, usgbc.org/LEED, also has free access to LEED Rating Systems, LEED Reference guide Introductions, and Checklists beyond those listed above.

References

- [Specifications for the LEED AP BD+C Exam](#)
- [BD+C Rating System](#)
- [BD+C Reference Guide](#)
- [Sustainable Building Technical Manual: Part II](#)
- [Guidance on Innovation & Design \(ID\) Credits](#)
- [LEED Online v2: Sample Credit Templates](#)
- [Cost of Green Revisited](#)
- [Energy Performance of LEED New Construction Buildings: Final Report](#)

Sample Questions

Disclaimer: The items listed here were discarded in the process of creating items for the new LEED AP Building Design + Construction exam. The items are provided for your convenience to allow you to better familiarize yourself with the format and general content of items on the exam.

The content of these items, while representative of the type of questions on the LEED AP BD+C exam, does not necessarily mirror the content that will appear on the actual exam. Further, your ability to correctly answer these sample items does not in any way predict or guarantee your ability to successfully answer questions on the actual LEED AP BD+C exam.

Exam Part 1: LEED Green Associate Exam Questions

1. What is the legal instrument that regulates current land use?

- Zoning
- Licensing
- Abatement
- Commissioning

Answer: **1:** A. Zoning. This question aligns itself with: VII. Project Surroundings and Public Outreach, A. Codes

2. Why should a green project be located in an existing community?

- A. Adequate parking is available on site.
- B. The zoning approval for the project is easier.
- C. Native plantings can be used for erosion control.
- D. The connection to basic community resources is present.

Answer: **2:** D. The connection to basic community resources is present. This question aligns itself with: II. Project Site Factors, B. Community connectivity, 2. Pedestrian Access

3. Graywater is most often used for:

- A. drinking.
- B. irrigation.
- C. dishwashers.
- D. swimming pools.

Answer: **3:** B. irrigation. This question aligns itself with: III. Water Management, A. Types and quality of water

4. What refrigerant contributes the most to global warming potential (GWP)?

- A. HFC-23
- B. CFC-12
- C. Propane
- D. HCFC-123

Answer: **4:** A. HFC-23. This question aligns itself with: IV. Project Systems and Energy Impacts, A. Environmental concerns

5. A general contractor (GC) attempts a credit in Local or Regional Materials and discovers that the specified product has only a portion of the material manufactured within the required radius. What should the GC do?

- A. Not list the product
- B. Not use the product
- C. List the entire product
- D. List only the portion within the required radius

Answer: **5:** D. List only the portion within the required radius. This question aligns itself with: V. Acquisition, Installation, and Management of Project Materials, B. Locally (regionally) harvested and manufactured materials

6. What Carpet and Rug Institute (CRI) program set standards for low-emitting carpets, adhesives, and pads?

- A. Green Seal
- B. Green Guard
- C. Green-e Certified
- D. Green Label Plus

Answer: **6:** D. Green Label Plus, This question aligns itself with: I. Synergistic Opportunities and LEED Application Process, D. Standards that support LEED credit

Exam Part 2: LEED AP BD+C Specialty Exam

1. A former landfill site is under consideration for a new low-cost housing development. For Sustainable Sites Credit, Brownfield Development, which remediation strategies are appropriate? (Choose three.)

- A. Solar detoxification
- B. Cap contaminants in place
- C. Treating contaminants on-site
- D. Hauling contaminated soil off-site
- E. Employing “Pump and Treat” method

Answer: **1:** A. Solar detoxification, C. Treating contaminants on-site, E. Employing “Pump and Treat” method.
This question aligns itself with: II. Water Management, A. Considerations for site selection, 1. Land issues

2. A building has 100 occupants. Calculate the baseline potable water usage for sewage conveyance for Water Efficiency, Innovative Wastewater Technologies.

- A. 96,400 gallons (364,913 liters)
- B. 100,000 gallons (378,541 liters)
- C. 109,200 gallons (413,366 liters)
- D. 140,300 gallons (531,093 liters)

Answer: **2:** C. 109,200 gallons (413,366 liters), This question aligns itself with: II. Water Management, A. Water treatment

3. The proposed design has south facing glazing with a high visible transmittance. The team is considering applying tint film in order to reduce the loading on the HVAC system. Which of the following achieves Indoor Environmental Quality, Daylight and Views Credit?

- A. Film on glazing, providing 70% of space access to daylight, and 88% space with views
- B. Reducing the area of glazing, providing 65% of space access to daylight, and 78% space with views
- C. Shading devices instead of film, providing 75% of space access to daylight, and 93% space with views
- D. Shading devices and light monitors instead of film, reducing the glazing area providing 80% of space access to daylight, and 90% space with views

Answer: **3:** D. Shading devices and light monitors instead of film, reducing the glazing area providing 80% of space access to daylight, and 90% space with views. This question aligns itself with: III. Project Systems and Energy Impacts, F. Energy tradeoffs

4. A LEED Core and Shell project is salvaging historic interior paneling and doors from the building that previously occupied this site. In addition to Materials and Resources Credit, Materials Reuse, what other Material and Resources Credit is impacted?

- A. Building Reuse
- B. Recycled Content
- C. Rapidly Renewable Materials
- D. Construction and Demolition Waste

Answer: **4:** D. Construction and Demolition Waste, This question aligns itself with: V. Acquisition, Installation, and Management of Project, Materials, A. Building reuse

5. The developer of an office building is concerned about the cost of the individualized lighting control system that is specified to satisfy the Indoor Environmental Quality Credit, Controllability of Systems - Lighting. How might the rest of the project team convince the developer of the value of the system with relationship to first costs?

- A. Increased end-user comfort and satisfaction will enhance productivity
- B. Reduced heat load results in reduction in the number and size of air conditioning equipment
- C. The system will reduce the lighting use which results in reduced electricity cost for the tenant
- D. The system will integrate with the natural daylighting design and reduce the electricity cost for the tenant, while increasing comfort

Answer: **5:** B. Reduced heat load results in reduction in the number and size of air conditioning equipment.
This question aligns itself with: V. Improvements to the Indoor Environment, K. Lighting controls

6. A school (non-university) is built on a large parcel of land. Ninety-five percent of the students live within a 3/4 mile (1.2 kilometers) walking distance from the main entrance of the school. What must the project also provide to maximize the number of points earned in Sustainable Sites?

- A. Separate pedestrian and bike routes from vehicular traffic
- B. Shuttle service for pedestrians during inclement weather conditions
- C. Pedestrian access from at least 50% of the residential neighborhoods
- D. Dedicated bike lane that extends to the end of the school property in one direction

Answer: **6: A.** Separate pedestrian and bike routes from vehicular traffic. This question aligns itself with: VII. Project Surroundings and Public Outreach, F. Pedestrian oriented streetscape design

Determining the Passing Score

A valid credentialing exam must have a defensible passing score. The passing score that separates candidates who have mastered the content from those who have not 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 passing score recommendation was then determined by a group of test development experts and volunteer Subject Matter Experts using the Angoff Method. The final passing score is approved by the GBCI Credentialing Steering Committee.

PRE-EXAM CHECKLIST

Are You Ready?

One Month Before Your Exam

Ensure that your given name (first name) and surname (last name) in My Credentials matches the given name and surname on the identification you will present at the test center. (See next page.) **If the names do not match, you will not be allowed to test and you will forfeit the exam fee.**

If you have a documented disability that would prevent you from taking a LEED Professional Exam under standard conditions, you may request a reasonable accommodation as required by the Americans with Disabilities Act (ADA). Prometric certifies that it shall comply with the provisions of the ADA. (See Special Testing Accommodations for more information.)

Review the address listed in your My Credentials profile so that, if you successfully pass, your certificate is mailed to the most current address. (See Certificates for more information.) To edit your address, go to [My Credentials](#) > Update Profile.

One Week Before Your Exam

Confirm that the exam scheduled with Prometric is for the correct date, time, and location. If it is not, contact Prometric online at prometric.com/gbci with your confirmation number or call Prometric's customer service. Please see the Contact Information section for your local Prometric phone number. **Please note that GBCI does NOT handle scheduling. Do NOT contact GBCI to confirm, reschedule, or cancel an exam appointment. Prometric requires TWO FULL DAYS before your exam to cancel or reschedule.** (See the Scheduling Your Exam section.) Read and understand this Candidate Handbook, including all policies, procedures, and consequences.

Test Security

To ensure the integrity of the LEED Professional Exams, specific measures are enforced during the administration of your exam. Before taking the examination you will be required to accept a nondisclosure agreement which prohibits any disclosure of exam content:

- Test questions and answers are the exclusive property of GBCI.
- The examination and the items (questions and answers) are protected by copyright law. The exam may not be copied or reproduced in part or in whole, by any means whatsoever, including memorization.
- Future discussion or disclosure of the content of the exam, orally or in writing, or by any other means, is prohibited.
- Theft or attempted theft of exam items is punishable to the fullest extent of the law.

Failure to comply with the agreement will prevent you from testing.

You will be observed at all times while taking the exam. This may include direct observation by test center staff, as well as audio and video recording of your exam session. Your participation in irregular behavior in or around the test center during the exam may result in invalidation of the results of your examination, termination of your candidate status, civil liability, criminal prosecution, or other appropriate sanctions.

What to Expect at the Test Center

It is recommended that you arrive at the test center at least 30 minutes prior to your scheduled exam appointment to get settled, check in, and begin the tutorial. Candidates who arrive at test site after their scheduled exam times will lose their reservations and be considered absent, and the policy for Failure to Appear for a Scheduled Exam will apply.

Your test session should begin within 30 minutes of your scheduled appointment. If circumstances arise at the test site that delay your test session more than 30 minutes after your scheduled appointment time, you will be given the choice of continuing to wait or rescheduling your appointment.

You will be escorted to a workstation by test center staff. You must remain in your seat during the exam except when authorized to leave by test center staff. Raise your hand to notify test center staff if:

- You experience problems with your computer
- An error message appears on the computer screen (do not clear the message)
- You need to take a break (testing time will NOT be suspended)
- You need the test center staff for any other reason

In the event that you encounter negative conditions at the test site such as HVAC failures, excessive noise, or technology malfunctions we recommend that you immediately notify the proctor and request that the issue is documented in an Incident Report. Be sure to record the Incident Report number. In unlikely cases where such conditions may occur, it does not modify or change the required passing score.

To report a problem with your exam experience, report the incident with the proctor at the test site and call candidate care within 10 days of the original examination date. Please see the Contact Information section for

your local Prometric phone number.

Identification Requirements

Candidates must provide valid, unexpired ID with a signature, a photograph that looks like the candidate, and an expiration date. Acceptable examples:

- Identification with photo and signature (to include: passport, driver's license, military ID, signed photo check or credit card)
- Identification with signature (to include: signed check, signed credit card) **AND** identification with photo (alien ID card, employee ID card, student ID)

Unacceptable forms of ID include but are not limited to an expired ID, an ID without an expiration date, and a Social Security Card.

Test Center Regulations

You must abide by Prometric's security rules while at the test center. See [Prometric's FAQs](#) for more information.

- You may not bring any personal or unauthorized items into the testing room. Most test centers provide small lockers for candidates to secure purses, wallets, keys, cell etc. Lockers will not accommodate large purses and bags.
- A calculator will be provided on-screen during the exam.
- Eating, drinking, and tobacco use are prohibited in the exam room.
- Unauthorized paper may not be brought into or removed from the exam room (dry erase markers, eraser, and writing surface will be provided by the test site staff and collected at the conclusion of your exam).
- You may not leave the exam room during your exam without the test proctor's permission. If you leave the building during your exam, the test proctor will terminate your exam session.
- You must present your photo ID each time you enter the exam room.

Grounds for Dismissal from the Test Center

Any candidate who engages in misconduct or does not comply with the test proctor's warning to discontinue inappropriate behavior may be dismissed from the test site, have exam results invalidated, or be subject to other appropriate sanctions. Fraud, deceit, dishonesty, or other irregular behavior in connection with taking the exam is strictly prohibited. Irregular behavior includes, but is not limited to, copying or allowing the copying of examination content, failing to work independently, possessing unauthorized devices or source materials, surrogate testing or other dishonest conduct, disrupting other examinees, and possessing, reproducing, or disclosing exam questions, answers, or other information regarding the content of the examination. The following behaviors are considered to be misconduct:

- Giving or receiving assistance of any kind
- Communication with other examinees or with any outside source by way of telephone, personal computer, internet, or any other means during the course of the exam is prohibited.
- Use or suspected use of any prohibited aids (any device that would provide an advantage while taking the

exam) during the examination period. This includes but is not limited to LEED Reference Guides, notes, exam references, study materials, practice exams, etc.

- Attempting to take the exam for another person
- Creating a disturbance of any kind
- Removing or attempting to remove examination questions, answers, or notes about the exam, in any format, from the exam room
- Tampering with the operation of the computer
- Failure to comply with the exam regulations of the test proctor

The chief proctor is authorized to take appropriate action to investigate, stop, or correct an observed or suspected irregular behavior or misconduct, including discharging examinees from the exam site and confiscation of any prohibited devices or materials. Examinees or any other persons implicated in an irregularity will be reported to GBCI for further action.

GBCI will make a ruling based on the consideration of both the candidate's report and Prometric's report of the incident. To appeal GBCI's ruling, send an email of your formal appeal to GBCI staff at gbc.org/contact. At this stage, the Credentialing Steering Committee will review and make a final ruling on the case.

AFTER YOUR EXAM

Exam Results

All LEED Professional exams are scored between 125 and 200. **A score of 170 or higher is required to pass.** Your exam score will be displayed on screen at the end of the exam and you will receive a printed report of your results from test center staff. **For the LEED AP combined exams, you must earn a 170 or higher on both parts within the same application period to earn the credential.**

Within 72 hours of your appointment, your exam results will be processed, your My Credentials account will be updated, and, if applicable, your listing will be added to the LEED Professional Directory.

Passing the Exam

Designating Your Credential

As soon as you have passed the exam, you can use the title "LEED AP" followed by your specialty(ies) (BD+C, Homes, ID+C, ND, O+M) and/or the logo.

Certificates

Once your exam results have been processed, you can request your certificate in My Credentials. Certificates are available in two forms: PDF softcopy (available for download at any time for free) and a hardcopy (one free per reporting period, additional copies cost \$25 each). If your certificate arrives damaged or does not arrive at all, please request a free replacement at gbc.org/contact > Certificate Requests.

Credential Maintenance Program

LEED APs must complete 30 continuing education (CE) hours biennially. For more information on credential maintenance, see the [CMP Guide](#).

Retesting for your credential

Once you've earned a credential, CMP guidelines limit retesting on the same exam. See the maintenance through retesting section of the [CMP Guide](#).

Earning the LEED AP after the LEED Green Associate

If you are a LEED Green Associate when you earn the LEED AP credential, your LEED Green Associate credential expires and is replaced by the LEED AP.

Failing the Exam

Retaking the Exam

You have three chances per application to pass each part of the exam. After each application period, you must wait 90 days before applying again. If you have exam attempts remaining, you can retake any parts you failed by registering again in My Credentials and using your new Eligibility ID to schedule; if not, you must wait the required time and apply again. **If you only passed one part of the exam at the end of an application period, that part will not carry over to the next.** You are responsible for the full exam fee for any part you retake.

Exam Content Appeals

Following completion of the exam candidates may submit, in writing and in accordance with the [Disciplinary and Exam Appeals Policy](#), comments on any question(s) they believe to contain technical errors in content. In your correspondence include your contact information, test date, the specific concerns about the question, as well as an indication of any comments left on the question during the exam. You are not allowed to copy the question before leaving the test center and are not expected to recreate the entire question in your correspondence. GBCI will review the question and you will be notified of the findings. Because of the need for test security, GBCI will not release exam questions or answers to candidates. GBCI does not respond to complaints or challenges received more than 14 days after the test date and does not respond to complaints sent to organizations other than GBCI.

GBCI provides this process for candidates who believe an exam question contains technical errors in content. The exam challenge process is not made available for complaints about fail scores or exam difficulty.

GBCI does not modify exam scores under any conditions. In the event of a successful exam content appeal, you will be given the opportunity to retest; your score will not be changed. The only way to earn a LEED Professional credential is to earn a 170 on the required exam(s).

Candidate Confidentiality

GBCI recognizes your rights to control personal information. GBCI policy is designed to safeguard this information from unauthorized disclosure. You can change your preference to be contacted by third parties through your My Credentials profile: gbc.org > My Credentials > Update Profile.

To protect your rights to control score distribution, exam scores are released only to you, the test taker and authorized GBCI staff. GBCI does not release test scores except for use in research studies that preserve your anonymity. In addition, GBCI does not release any account details to any third parties without the candidate's written permission.

Official statistics regarding the LEED Professional exams, including all item performance data, individual data, and demographic data, will be considered confidential unless officially released by GBCI. Candidates' scores will always

remain confidential unless released with written consent of a candidate.

CONTACT

Prometric

1501 South Clinton Street, Canton Crossing Tower, 14th Floor, Baltimore, MD 21224

prometric.com/gbci

Prometric's website is available for scheduling, rescheduling, cancelling, and confirming exam appointments 24 hours per day. To schedule an exam, you will need to have first applied and registered with GBCI. To reschedule, cancel, or confirm an exam appointment, you will need your Prometric issued 16-digit confirmation number.

Prometric Call Centers

North America	
Customer service: To schedule, reschedule, cancel and confirm appointments or for general testing information (Monday to Friday, 8:00 to 20:00 PM ET [GMT -5])	888 215 4154
Candidate care: For any problems encountered during your experience with Prometric (Monday to Friday, 8:00 to 21:00 ET; Saturday, 9:00 to 17:00 PM ET [GMT -5])	800 853 6769
Bulk Registration (five or more candidates)	800 774 1292
Special Conditions (Candidates with disabilities)	800 967 1139
Fax	800 853 6781
Latin America	
To schedule, reschedule, cancel and confirm appointments or for general testing information	+1 443 751 4995
Asia/Pacific	
China (Monday - Friday, 8:30 to 19:00 GMT +10:00)	+86 10 62799911
India (Monday - Friday, 9:00 to 17:30 GMT +05:30)	91 124 4147700
Japan (Monday - Friday, 8:30 to 19:00 GMT +10:00)	0120 347737
Korea (Monday - Friday, 8:30 to 19:00 GMT +10:00)	1566 0990
Australia, Hong Kong, Indonesia, Malaysia, New Zealand, Philippines, Singapore, Taiwan, Thailand and all other Asia/Pacific countries (Monday - Friday, 8:00 to 20:00 GMT +08:00)	603 7628 3333
Europe, Middle East, Africa:	
Europe	31 320 239 540
Middle East (Sunday to Thursday)	31 320 239 530
North Africa (Sunday to Thursday)	31 320 239 530
Sub-Sahara Africa	31 320 239 593

Green Building Certification Institute

2101 L Street NW, Suite 650, Washington, DC 20037

gbci.org

GBCI's website is available 24 hours per day for exam application and registration, information regarding the LEED Professional Exams, and access to your My Credentials account.

Call Center: 1-800-795-1746 (within the US) or +1-202-828-1145 (outside the US)

GBCI's call center is available Monday through Friday from 9:00 to 19:00 ET for questions regarding exam

registration, USGBC or CaGBC member pricing, My Credentials, the LEED Professional Directory, and the LEED Professional Exams.

Exam Department: [gbci.org/contact](https://www.gbci.org/contact)

GBCI staff are available for questions, comments, and concerns regarding certificates, LEED Professional Exam records, USGBC or CaGBC member pricing refunds, exam content appeals, exam development, exam scoring, exam format, and all other LEED Professional Exam policies and procedures.