

Green Roof Professional Accreditation Exam Guidebook

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Organization Background

In 1999, Green Roofs for Healthy Cities (GRHC), a small network consisting of public and private organizations, was founded as a direct result of a research project on the benefits of green roofs and barriers to industry development. In 2004 GRHC was incorporated as a 501(c)(6) and is now a rapidly growing not-for-profit industry association working to promote the green roof industry throughout North America

GRHC Mission

Green Roofs for Healthy Cities' mission is to increase the awareness of the economic, social, and environmental benefits of green roof infrastructure across North America and rapidly advance the development of the market for green roof products and services.

Although the current market does not value many of the tangible public and private benefits of green roofs to their full potential, we are striving to facilitate changes that will bring green roof technologies to the forefront of high performance green building design, implementation and maintenance. The development of the green roof market requires that we:

- Research the public and private community building and community-wide benefits of green roofs in various cities and climate zones across North America.
- Develop and provide value added products and services to our *Corporate, Individual* and *Supporter* membership base.
- Engage a wide variety of stakeholders and educate the general public on the many social, economic and environmental benefits of green roof infrastructure.
- Establish cost effective public policies to recognize the public benefits and fund the widespread implementation of roofs thereby helping to reduce the higher upfront capital costs associated with green roof technology.
- Develop professional training and accreditation courses to facilitate excellence in green roof design, implementation and maintenance.
- Facilitate the international exchange of information on policies, products, science and research.

Occupational Standards

The first step in the process of establishing a Green Roof Professional (GRP) accreditation was completed in January of 2007 when a group of 16 subject matter experts met in Toronto for a two-day work session. Their deliberations resulted in the development of a set of Occupational Standards for an accredited Green Roof Professional (GRP). These standards identify the specific skills and knowledge, across a number of professions, required to become a GRP. The Occupational Standards are used to inform all of our courses and provide the basis for the exam.

During the Occupational Analysis process, it was determined that *Green Roof Professionals* will come from any number of professional backgrounds, including architects, landscape architects, landscape designers, engineers, contractors, horticulturalists, manufacturers, and roofing consultants, to name a few. *Green Roof Professionals* may:

- Identify and pull the project team together.
- Function as a team leader for the green roof portion of a project.
- Understand the different options for green roof design and implementation.
- Maximize the benefits of green roofs during the design process (e.g., by identifying multiple design and implementation opportunities).
- Understand the major challenges and best practices associated with green roof design, installation and maintenance.

Subsequent work sessions of the Occupational Analysis Steering Committee were conducted in consultation with Prometric Services for examination development and security.

Accreditation Objectives

The Green Roof Professional (GRP) designation does not imply comprehensive knowledge applicable to all of the challenges facing this rapidly emerging industry. It does not provide any guarantee of professional competency, which is the responsibility of agencies that provide licensure for professionals.

Successful green roofs require a combination of knowledge and expertise in the so-called 'black arts' and 'green arts'. The 'black arts' focus on the critical, non-living elements of a green roof assembly such as water proofing, structural engineering and project management, while the 'green arts' deal with the living architectural components such as water management, growing media, plants and maintenance. Very few industry professionals currently have the knowledge and expertise that encompass all of these disciplines. Green Roof Professionals (GRPs) will be well versed in both the 'black' and the 'green' arts in order to gain this new professional distinction of green building expertise.

The Green Roof Professional (GRP) accreditation and professional courses that support the program provide a number of important benefits that are key to the long-term health and growth of the green roof industry. These include:

- Enabling professionals to differentiate themselves in the marketplace.
- Establishing a high-level of professionalism and improved multi-disciplinary collaboration.
- Increasing customer confidence in green roof technology.
- Better green roof design and installation practices.
- Protecting the industry from the inevitable failures that result from inappropriate design, installation, and maintenance practices.

Exam Fee and Registration

The fee for the exam is \$495 and covers the cost of developing, administering, scoring, and credential maintenance. Registration is only available through the GRHC web site at www.greenroofs.org where a list of exams and locations is posted.

When you register be sure to use the exact same name that is shown on your photo identification or you will not be allowed to write the exam.

You will be required to enter your credit card payment information or submit a check within two weeks after registering. Once you have registered you will receive an email with your confirmation number. This confirmation number will be used at check-in on the day of the exam. **Please bring a copy of the email or have your confirmation number with you.**

Cancellation/Rescheduling Policy

To change or cancel your exam reservation you must notify GRHC by email training@greenroofs.org or call 416-971-4494. Please note that the following regulations apply to changes and cancellations:

1. Cancellations received up to 30 days prior to the exam will be eligible for a refund minus an administration fee of \$30.
2. Changes received up to 30 days prior to the exam will not receive a refund but the fee will be kept and applied to the requested new date. A \$30 administration fee will also apply.
3. Cancellations received less than 30 days before the exam date will not be refunded.
4. Changes received less than one month before the exam will be subject to the full fee plus a second and full fee for the new date.

Failure to Attend

If you fail to show up for an exam you will forfeit the full fee. There are no refunds for examinations not taken.

You may only be excused and refunded for the following reasons:

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

For any of the above reasons, documentation supporting the absence is mandatory and must be faxed to GRHC at 416-971-9844.

Exam Cancellation

The exam will only be delayed or cancelled in emergency situations e.g. natural disaster, severe weather. If Prometric is forced to cancel an exam GRHC will contact all candidates and reschedule the exam with no additional fee.

Re-Examination

There is no limit to the number of times an unsuccessful candidate may write the exam. However, the full fee will be charged for each exam scheduled.

Accommodations for Candidates with Disabilities

Reasonable accommodations are made to ensure every candidate has the opportunity to write the exam. GRHC and Prometric guarantee that they shall comply with the provisions of all applicable US and Canadian laws for candidates with disabilities. However, notification of the need for accommodation must be received with registration and no less than six weeks prior to the examination

date at which time signed documentation outlining the exact type of disability and its requisite accommodations will be required from a medical professional.

Reference Materials

All of the questions in the exam are based on the material within the training manuals (not including the Appendices or Case Studies) for the following courses:

Green Roof Design 101 Introductory Course
Green Roof Infrastructure: Design and Installation 201
Green Roof Waterproofing and Drainage 301
Green Roof Plants and Growing Media 401

Candidate Qualifications

There are no prerequisites required to take the Green Roof Professional exam. However, it is highly recommend that candidates attend the four courses referenced above or purchase the course manuals.

As of January 1st, 2011, all GRPs are required to be GRHC Individual Members in good standing.

To access GRHC's course calendar, or to purchase a course manual, go to www.greenroofs.org.

Exam Areas of Concentration

Exam questions are based on the key areas of knowledge for a Green Roof Professional (originally defined in the Occupational Standards for Green Roof Professionals) as follows:

Pre-Design

1. Assess client expectations and program requirements
2. Determine scope of work
3. Identify the core competencies needed for design team and trades
4. Develop preliminary critical path/schedule
5. Develop preliminary budget based on proposed scope of work
6. Analyze existing conditions
7. Review documentation relative to all existing conditions

Design

1. Formulate design strategies and options with team members
2. Review drawings and construction documents developed by design team with respect to green roof design
3. Review green roof construction cost estimates
4. Identify green roof financial benefits
5. Finalize, update, and review and finalize critical path document as it relates to green roof

Contract Management

1. Assist in the development and implementation of the construction contracting process.
2. Assist in the bidding process
3. Assist in contract review and negotiations
4. Assist with pre-construction planning

Quality Assurance Support

1. Recognize site-specific safety requirements applicable to an accredited GRP
2. Promote compliance with the quality assurance team
3. Promote best management practices for the installation of green roof system

Maintenance

1. Promote compliance with maintenance plan
2. Promote standardized performance monitoring and record keeping

Exam Format and Sample Questions

The exam will be pencil and paper-based. The two-hour exam consists of 100 multiple-choice questions.

The following are typical formats of questions on the exam.

1. An extensive green roof located in a shady courtyard is failing. The reason that plant material is dying is that the green roof is planted with
 - (A) Drought-resistant plant material
 - (B) Sun-preferenced plant material
 - (C) Shade-tolerant perennials
 - (D) Grasses
2. Which of the following design features will provide the maximum benefit in a green roof that is intended to reduce air conditioning costs?
 - (A) Herbaceous plants
 - (B) Irrigation
 - (C) Deeper media
 - (D) Light color media and plants
3. Which of the following types of sedum plants is NOT a suitable substitution for sedum album in a 3inch extensive green roof?
 - (A) Spurium

- (B) Sexangulare
- (C) Spectabile
- (D) Reflexum

4. Preliminary cost estimates for green roofs include the

- (A) saturated weight of the growing medium.
- (B) structural capacity of load bearing walls.
- (C) mature size of plant material.
- (D) total length of irrigation system.

Exam Day

On exam day please arrive at the location 30 minutes before exam time. Candidates who arrive after the exam start time will not be allowed in and will forfeit their registration fee.

It is essential that you have photo identification with your first and last name shown exactly as it appears on your exam registration. If the name on your ID does not match the name on your registration you will not be allowed to write the exam and you will forfeit the full exam fee.

Types of acceptable ID include:

- Government issued photo ID with signature (passport, driver's licence)
- Credit card with photo and signature (signed photo check card or credit card)

OR

- One photo ID without signature plus a credit card with signature (Alien ID Card, Employee ID Card, Student ID with Signed Check card or credit card)

Unacceptable forms of ID:

- Social security card
- Expired photo ID

Please note the following:

- Photo IDs must look like the candidate
- First and last name on the ID must match the name on the exam registration

Please note that food and beverages may not be taken into the exam room.

Exam Security

At the exam you will be required to accept a nondisclosure agreement, which prohibits any disclosure of exam content. Violation of this agreement will result in

loss and continued prohibition of Green Roof Professional accreditation for individuals involved.

Candidates will be monitored during the exam. Any irregular behavior may result in invalidation of your examination results and, depending on the severity of the behavior, civil liability or criminal prosecution or other appropriate sanctions.

Grounds for dismissal from the Exam Room

Any candidate who does not comply with the Exam Proctor's warning to discontinue inappropriate behavior may be dismissed from the exam room.

Personal items such as purses, briefcases, backpacks, suitcases, etc, are generally not allowed in the exam room. However, if a candidate has no secure place to leave such items they will be taken from them during the course of the exam and placed at the front of the room.

Inappropriate behavior includes

- Communication with other examinees or outside source by cell phone (calls or text messaging)
- Use or suspected use of any prohibited aids. This includes but is not limited to: green roof training manuals, other books, study materials, etc.
- 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
- Failure to comply with exam regulations as stipulated by the test proctor(s)

Exam Results

Exam candidates will be notified of their results 6-8 weeks following the exam.

Successful candidates will receive a GRP pin and certificate and be recognized in the GRHC magazine as well as on the GRHC web site.

Upon notification of passing the exam you may use the GRP on business cards and signatures. You will also be allowed to use the GRP logo in accordance with GRHC logo guidelines, which will accompany your certificate and pin.

In the event a candidate loses the certificate at a future date, a replacement may be requested for a \$25 dollar administration fee.

If you fail the exam you can rewrite at the next opportunity.

Following the exam candidates may submit in writing any comments on questions that they believe contain technical errors in content. Please include your contact information, examination date and specific concerns about the questions. You are not allowed to copy the question before leaving the exam center and are not expected to recreate the entire question in your

correspondence. GRHC and Prometric will review the question and you will be notified of the findings.

Challenges must be received within 10 days following the exam to be considered.

Because of the need for exam security, GRHC and Prometric will not release exam questions or answers to candidates.

Responses to exam content challenges will not include a review of an individual's score or consider a question's effect on the exam overall. The challenge process does not apply to fail scores or exam difficulty. Feedback on individual candidate performance will not be provided.

Maintaining your Accreditation

Standing in the program will be maintained by obtaining a minimum of 16 continuing education credits every two years. A minimum of eight of these credits must be for GRHC related activities including our conference, symposia, and courses. Guidelines for remaining credits will be available by the end of 2009.

As of January 1st, 2011, all GRPs are required to be GRHC Individual Members in good standing. An accreditation renewal fee of \$95 US is also required.

Contact Information

If you have any questions not answered in this guide please email them to jrichie@greenroofs.org.