GSHP System Inspector

Certification Guide



Legal Notice

This certification program has been developed taking into consideration the requirements of CSA/ANSI/IGSHPA C448 Series:25, *Design and installation of ground source heat pump systems for commercial and residential buildings*.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document's fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party's intellectual property rights. CSA does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA makes no representations or warranties regarding this document's compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA is a private not-for-profit company that publishes voluntary standards and related documents. CSA has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA and the users of this document (whether it be in printed or electronic form), CSA is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA's and/or others' intellectual property and may give rise to a right in CSA and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by license or by law, CSA reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form: load this document onto a computer for the sole purpose of reviewing it; search and browse this document; and print this document if it is in PDF format.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.

Table of Contents

Introduction **3**
Purpose of this guidebook 3
About CSA Group 3
Personnel certification contact information 3
About this personnel certification 3
Qualifications of a Certified GSHP System Inspector Professional 4
Personnel certification prerequisites 4
Personnel certification process **4**
Application process 4
Fees 5
Payment and refund policy 5
Audit process 6
Examination administration and scheduling 6
Examination eligibility 7
Re-examination fees 7
Examination language 7
Examination special accommodation 7
Certificate issuance 7
Personnel certification period 8
Use and requirements for the use of certificates and logos 8
Personnel certification terms and conditions 8
Professional code of ethics and professional conduct 9
Non-discrimination 9
Impartiality 9
Confidentiality 10
Privacy policy 10
Recertification 10
Refusal to issue or renew a GSHP System Inspector Certification 11
Revocation or suspension of a GSHP System Inspector Certification 11
Voluntary withdrawal of personnel certification 11
Complaints and disputes 11
Appeals 13
Appeals Board 13
Examination preparation and completion **14**
General description 14
Exam content 14
Pass-fail standard 14
Exam delivery 14
Examination – Guidelines 15
Exam security 16
Exam results notification 17
Examination body of knowledge and blueprint **17**
Knowledge reference documents 17
Exam objectives **17**

Introduction

Purpose of this guidebook

This Guidebook provides information on the requirements to achieve a GSHP System Inspector Certification.

This personnel certification guide is provided for informational purposes only. In the event of any discrepancy between this version and the official version published on the CSA Group website, the official version shall prevail.

About CSA Group

CSA Group is an independent, not-for-profit member-based association dedicated to advancing safety, sustainability and social good. We are an accredited standards development organization.

As technologies continue to grow and evolve, and as the labour force grows more mobile, so has the need for a method to consistently assess, certify and measure individual worker knowledge. In response to this growing need, CSA Group develops and manages personnel certifications guided by ISO/IEC 17024:2012 *General requirements for bodies operating certification systems of persons.*

Current operating personnel certifications include Automotive Electric Vehicle Technician Safety, Compressed Natural Gas (CNG) Cylinder and Fuel System Inspector, GSHP Commercial System Designer, GSHP Residential System Designer, Heavy Duty Electric Vehicle Technician, Hydrogen Fuel System Inspector, Medical Device Reprocessing Manager/Supervisor, Medical Device Reprocessing Technician, Medical Gas Piping and System Installer, and P.I.P.E.S. Riggers.

Personnel certification contact information

CSA Group

Email: training@csagroup.org

Website: www.csagroup.org

About this personnel certification

The GSHP System Inspector Certification has been developed by CSA Group in conjunction with interested parties in the industry to provide assurance that an individual has demonstrated the knowledge and skills necessary to inspect commercial and residential GSHP systems in compliance with CSA/ANSI/IGSHPA C448 Series:25, *Design and installation of ground source heat pump systems for commercial and residential buildings*.

The development of this personnel certification is guided by the ISO/IEC 17024 standard. ISO/IEC 17024 is the global benchmark for organizations operating certification of persons. It outlines the methods and procedures required to ensure the objective and unbiased assessment of a candidate's knowledge, skills, and abilities.

Passing the GSHP System Inspector examination will indicate that the candidate possesses the knowledge, skills, and decision-making abilities necessary to inspect commercial and residential GSHP systems in compliance with CSA/ANSI/IGSHPA C448 Series:25, *Design and installation of ground source heat pump systems for commercial and residential buildings*.

Certified GSHP System Inspector Professionals will be periodically reassessed to ensure they remain up-to-date on technical developments and industry changes.

The CSA Group website will contain a registry of GSHP System Inspector Professionals.

Qualifications of a Certified GSHP System Inspector Professional

The GSHP System Inspector examination assesses each candidate's knowledge to ensure they meet the standards of a Minimally Qualified Candidate (MQC). CSA Group's expert committee defines the minimally qualified candidate as follows:

The MQC can:

- Interpret and apply CSA/ANSI/IGSHPA C448 Series:25, *Design and installation of ground source heat pump systems for commercial and residential buildings*.
- Verify that the construction materials conform to the construction documents (pipe material, pipe length, grout material, etc.).
- Identify information on the construction documents (plans and specifications) and confirm that the ground heat exchanger and building HVAC equipment are installed as specified and according to CSA/ANSI/IGSHPA C448 Series:25, *Design and installation of ground source heat pump systems for commercial and residential buildings.*
- Verify and interpret that the ground heat exchanger pressure testing and flushing test results match the specifications and CSA/ANSI/IGSHPA C448 Series:25, *Design and installation of ground source heat pump systems for commercial and residential buildings*.
- Verify and interpret the commissioning and test and balance reports.

Personnel certification prerequisites

To apply to take the GSHP System Inspector examination, candidates must meet the following criteria:

- Proof of field experience or experience in construction or underground utility trades, which may include any of the following:
  - Accreditation as a code review authority or inspector; (may be a certification, or a job title);
  - Five years of experience as an HVAC service technician or licensed contractor;
  - PE or P.Eng. designation;
  - Residential or Commercial System Designer Certification;
  - Three years of experience as a Mechanical Inspector;

  and
- Certificate of successful completion of the GSHP System Verification and Inspection Program full course of study.

Please note: all information, including references provided to CSA Group as part of the application process, will remain confidential.

Personnel certification process

Application process

To become a Certified GSHP System Inspector Professional, an applicant must:

1. Purchase the application and exam through the CSA Group website at: https://www.csagroup.org/store/
2. Meet all the prerequisites of the personnel certification.
3. Respond to the purchase confirmation by completing the online application.
4. Provide copies of all applicable documentation.
5. Agree and adhere to the Professional Code of Ethics and Professional Conduct, and the Personnel Certification Terms and Conditions.

   and

6. Schedule and pass the written exam.

All fees are due prior to submitting the application.

An email address is mandatory and must be included, as this will be the primary mode of communication regarding the steps in the personnel certification process. Each candidate applying for personnel certification must have a unique, individual email address. **One email address may not be used for multiple candidates**.

CSA Group will process applications when received. If an application is incomplete, CSA Group will notify the applicant via email of the deficiencies found in the application. Those deficiencies must be corrected before the candidate is approved to take the personnel certification exam.

All applicants will receive a confirmation email within two (2) weeks of application regarding their registration and personnel certification eligibility requirements.

Each new application has a life span of six (6) months from the time it is accepted. The applicant must fulfill all requirements of the personnel certification process within that time period. If an applicant is unable to complete the personnel certification process within that period of time, the application will expire, and the applicant must restart the personnel certification process, including payment of any application or examination fees.

Fees

Fees for the GSHP System Inspector Certification, including application, examination, and re-examination fees, are available on the CSA Group Store. Please visit https://www.csagroup.org/store/ for more information.

Payment and refund policy

Payment of the fees must be submitted online at https://www.csagroup.org/store/

CSA Group accepts Visa, MasterCard, and American Express as payment methods in US or Canadian dollars.

When the payment has been received, candidates will receive an email from training@csagroup.org with a link in order to complete the online application. Once the application is submitted, CSA will process it and send a notification email to the candidate regarding the next step. This email may:

- Request additional information if necessary.
- Notify the candidate that the application has been selected for audit (if applicable).

  or

- Provide notice of approval to write the exam, along with information for scheduling the examination.

Application fees are non-refundable.

Exam fees may be refunded if a written request is submitted at least one month before a scheduled exam date and at least one month before the examination eligibility expiration date. CSA Group will retain a processing fee of $180 CA.

Audit process

The submission of an application indicates the applicant's agreement to comply with the terms of CSA Group's audit process. All applications are subject to an audit and a percentage of applications are randomly selected for audit. Please note that while the selection process for an audit is primarily random, CSA Group reserves the right to select any applicant to be audited at any time, including after the credential has been awarded. If the applicant fails to meet the audit requirements after attaining the credential, the applicant is not entitled to a refund.

The applicant will be notified when the application and fee are received if the submitted application is selected for audit. An audit notification will be sent to the applicant electronically and will provide detailed information on how to comply with the terms of the audit. During an audit, the applicant may be asked to submit supporting documentation required by the personnel certification, such request may include, but is not limited to, the following:

- Copies of diploma or a global equivalent.
- Signatures from supervisor(s) or manager(s) for the skills, experience and/or responsibilities if required and documented in the experience section of the application and on the performance checklist.
- Copies of certificates and/or letters from the training institution(s) for any mandatory course.
- Copies of certificates and/or letters to demonstrate the required amount of professional development.

  and

- Other items required by the personnel certification.

Once documentation is provided, the audit should take approximately two weeks to complete. The applicant may not continue with the personnel certification process until the applicant has complied with the audit requirements.

Once the applicant has successfully completed the audit, they will be permitted to continue the personnel certification process and examination eligibility will be communicated. If the applicant fails to meet the audit requirements, a refund may be given, dependent upon the stage of the personnel certification process at the time of the audit. (Refer to the Payment and Refund Policy section of this guidebook for more details.)

Examination administration and scheduling

The GSHP System Inspector examination is administered through CSA Group's computer-based testing network. Once a candidate has submitted all the required information and has been approved to take the personnel certification exam, CSA Group will email the candidate approval for the exam and scheduling information. Once the candidate receives their email notifications, they will be able to register for the exam.

There are two options for taking the examination:

- Via online proctoring, using the candidate's own computer at home, work, or any location that meets the online requirements*.

  or

- At a proctored testing location (locations are typically a short drive for most candidates).

Applicants should save all examination scheduling verification for their records.

CSA Group uses computer-based testing (CBT) to deliver its examinations. However, in certain situations, paper-based tests may be offered for accommodation reasons.

*Please contact CSA Group for a guide on computer and location requirements for online exam proctoring.

Examination eligibility

The examination eligibility period is six (6) months from the time an application is approved by CSA Group. Applicants may take the examination up to three times within the six-month period if they did not pass on the first attempt. (As noted below, re-examination fees apply to the second and third attempts to pass the examination.)

A waiting period between applications is 6 months if the candidate has three failed attempts at the examination.

Re-examination fees

During the examination eligibility period, an applicant may take the written examination up to three times. Re-examination fees apply to the second and third attempts to pass the examination, and re-examination fees must be paid in full in order to schedule an exam. There is a two-week waiting period between exam attempts.

If the eligibility period expires without achieving a passing score, the applicant must reapply for the personnel certification after a six (6) month waiting period, as stated above.

Examination language

The CSA Group certification examination for GSHP System Inspector is administered in English.

Examination special accommodation

CSA Group adheres to the principles of accessibility and will accommodate any special needs upon request.

Certificate issuance

Upon confirmation of application requirements and passing the personnel certification exam, each GSHP System Inspector Professional will be issued a digital badge indicating the valid personnel certification period.

CSA Group owns the certificate and may not be reproduced or modified in any way.

How do I receive my badge?

A badge notification email is sent to the email address associated with the CSA Learning account. If you do not see the notification email in your inbox, check the junk or spam folders. To accept the badge, click the Access your badge link in the badge notification email.

We encourage learners to take advantage of the free CanCred Passport service to easily receive, store, and share badges from multiple issuers. A CanCred Passport is not required to accept a badge.

If you have any trouble accessing you badge you can contact training@csagroup.org.

Personnel certification period

CSA Group's GSHP System Inspector Certification is valid for a period of 5 years from the date of issue.

Use and requirements for the use of certificates and logos

Once an individual receives their certification letter and certificate, the individual may represent themselves as a Certified GSHP System Inspector Professional under CSA Group's GSHP System Inspector Certification.

Holding a personnel certification does not authorize the certified individual to use the CSA Group name or logo. All requests for use of the name or logo must be submitted in writing and expressly authorized by CSA Group. As part of its monitoring activities, CSA Group routinely reviews advertisements, catalogues, websites, and promotional materials to confirm compliance. Unauthorized use of the CSA Group name or logo may result in withdrawal of personnel certification and, in server cases, legal action.

Personnel certification terms and conditions

By signing and submitting the electronic application, candidates agree to the following terms and conditions:

1. I agree to comply with the provisions of this personnel certification as described in the Personnel Certification Guide PCP-14 GSHP System Inspector Certification, to only make claims regarding my personnel certification with respect to the scope for which the personnel certification has been granted, and not to use the certificate in a misleading manner.
2. I agree to notify CSA Group in a timely manner of changes concerning the information I have provided, including my current address, telephone number, and email.
3. I have reported, and will continue to report, to CSA Group, within sixty (60) days of occurrence, any matters, proceedings, lawsuits, settlements and/or other agreements, administrative agency actions, or organizational actions relating to my profession or occupation, including all complaints relating to my professional activities, and matters or proceedings involving, but not limited to personnel certification, credentialing, malpractice, disciplinary ethics or similar matters.
4. I also agree to promptly report, within sixty (60) days of occurrence, any felony criminal charges, convictions, or plea agreements or other criminal charges, convictions, or plea agreements relating to acts of dishonesty or unethical conduct.
5. I agree that CSA Group has the right to communicate with any person, government agency or organization to review or confirm the information in this application or any other information related to my application for CSA Group personnel certifications. Further, I agree to and authorize the release of any information requested by CSA Group for such review and confirmation.
6. I understand that the CSA Group credential status does not imply licensure, registration or government authorization to practice any specific job function or to engage in related activities
7. I agree that all materials submitted to CSA Group become the property of CSA Group, and that CSA Group is not required to return any of these materials to me.
8. I agree that upon achieving the CSA Group credential, my name may be posted on the CSA Group website as part of an Online Registry to be created and maintained by CSA Group.
9. I agree that all disputes relating in any way to my application for a CSA Group personnel certification and/or my involvement generally in a CSA Group personnel certification will be

resolved solely and exclusively by means of CSA Group policies, procedures and rules, including the stated appeals process.

10. CSA Group reserves the right to suspend or revoke my credential if it is determined I have failed to uphold, or otherwise breached this agreement, or committed a violation of the CSA Group Professional Code of Ethics and Professional Conduct.
11. I agree to refrain from use or promotion of this personnel certification should my personnel certification be suspended, until notified of the suspension being resolved.
12. I agree to refrain from all use and promotion of this personnel certification should this personnel certification be withdrawn.
13. I release and indemnify CSA Group from all liability and claims that may arise out of, or be related to, my personnel certification and related activities. This personnel certification agreement may be revised periodically. I understand that it is my responsibility to obtain the most current copy of this personnel certification agreement in the personnel certification guide online at https://www.csagroup.org/store/

Professional code of ethics and professional conduct

This Professional Code of Ethics and Professional Conduct sets forth the expectation that credential holders will commit to conducting themselves in a professional, honest, and impartial manner.

This code of ethics applies to all CSA Group personnel certification credential holders, regardless of the personnel certification designation, and includes the following professional conduct:

- Provide equitable, honest and impartial treatment of customers.
- Provide customers with accurate, objective, timely and understandable information.
- Perform all services in a safe and professional manner.
- Stay informed of and comply with all relevant laws, codes, regulations, standards and industry practices.
- Protect proprietary and confidential information gained during the course of work; and
- Promote positive activities which raise the level of professionalism of the industry.

By signing and submitting the electronic application, candidates agree to conduct themselves in a professional and thorough manner as a CSA Group personnel certification holder. Furthermore, they agree to the Personnel Certification Terms and Conditions, including adherence to the Professional Code of Ethics and Professional Conduct.

Non-discrimination

Participation in CSA Group's personnel certifications is open on a non-discriminatory basis to all individuals and does not require membership in any association.

Impartiality

CSA Group and our employees, contractors and volunteers understand the importance of impartiality and the consideration of any potential conflict of interests in carrying out certification activities. CSA Group is committed to identifying and mitigating risks in every area of the certification process, which may pose a threat to impartiality. Certification of individuals is based on objective evidence obtained by CSA Group through a fair, valid and reliable assessment process which is not influenced by other interests or parties.

Confidentiality

CSA Group is committed to protecting confidential and/or proprietary information related to applicants, candidates, certificates and examination development, maintenance, and administration process.

All information submitted and/or retained by CSA Group regarding each individual's personnel certification application, private information and communications, examination results and personnel certification information are confidential and may not be disclosed, divulged or made accessible. Examination results will only be released to the candidate.

Information related to the design, development, administration and maintenance of the personnel certification examination is confidential with confidential materials including, but not limited to, all examination development documentation, standard setting documentation, exam performance documents, individual examination items and exam forms, as well as examination scores and score reporting.

CSA Group maintains confidential information received from the individual and will not disclose such information to any third party without prior written approval by the individual, or as required by law. CSA Group will provide written notification to the individual at least five (5) business days prior to releasing such information.

Privacy policy

CSA Group and its subsidiaries and affiliates (collectively CSA Group) are committed to respecting your privacy. Our Privacy Policy describes how we collect, use, disclose, store and otherwise process information through our website and its affiliated websites and other online products and services. In addition, this Policy states how you can control the collection, correction and/or deletion of information. We will not use or share your information with anyone except as described in this Privacy Policy.

We urge you to read our Privacy Policy so that you understand our commitment to you and your privacy, and how you can participate in that commitment by visiting https://www.csagroup.org/legal/privacy-policy/.

By providing your personal information to CSA Group in the ways described in this Privacy Policy, you agree that you are authorized to provide that information and are accepting this Privacy Policy and any supplementary privacy statement that may be relevant to you. You have the right at any point to revoke your consent and CSA Group will stop using and processing your personal data. If you do not agree to our practices, please do not register, subscribe, create an account, or otherwise interact with our services, CSA Group's websites, or mobile-device applications.

Recertification

A GSHP System Inspector Certification expires every five (5) years. Generally, CSA Group will issue a recertification notice and application form ninety (90) days prior to the date when the certificate expires, but it is the responsibility of the applicant to ensure timely recertification. Certified GSHP System Inspector Professionals who apply for recertification, meet the requirements, and pay the required fee will receive a new certificate containing the new expiry date.

Certified GSHP System Inspector Professionals may apply for recertification up to six (6) months prior to their personnel certification expiration date and no later than three (3) months after expiration. Certified GSHP System Inspector Professionals applying for recertification more than three (3) months after the expiration of their personnel certification must fulfill all requirements of the initial personnel certification process.

Recertification requirements

To maintain certification, candidates must renew by challenging and passing the written certification examination every 5 years.

Refusal to issue or renew a GSHP System Inspector Certification

CSA Group may refuse to issue or renew a GSHP System Inspector Certification for any of the circumstances under which CSA Group can revoke or suspend a personnel certification, or the personnel certification to be renewed was revoked or suspended by CSA Group.

Revocation or suspension of a GSHP System Inspector Certification

CSA Group reserves the right to withdraw the personnel certification of any person found violating the Personnel Certification Terms and Conditions, Professional Code of Ethics and Professional Conduct or the policies and procedures of the personnel certification.

CSA Group may revoke or suspend a GSHP System Inspector Certification for any of the following reasons, including but not limited to:

- Violation of the Personnel Certification Terms and Conditions or Professional Code of Ethics and Professional Conduct.
- The application submitted was fraudulent or inaccurate.
- The person was discharged from his/her employment for incompetence, unless the person has not yet exhausted the rights of appeal available in his/her organization.
- The person who has previously had a GSHP System Inspector Certification revoked.
- Failing to:
    - Exercise the level of care, diligence, and skill that a reasonably prudent technician would be expected to exercise in a similar situation.
    - Act honestly, competently and with integrity.
- Meet or has contravened any condition that is set out in his or her certificate.

Upon notice of termination of a GSHP System Inspector Certification, the individual will cease all use of or reference to the CSA Group personnel certification and the GSHP System Inspector Professional designation. Individuals have the right to appeal as outlined in the appeals process below.

Voluntary withdrawal of personnel certification

Individuals wishing to withdraw from the GSHP System Inspector Certification must submit a request in writing to CSA Group. Once approved, the individual will be removed from the National Registry and must immediately cease any use of or reference to the CSA Group personnel certification. Individuals wishing to reinstate their personnel certification must apply for personnel certification as outlined in the personnel certification process.

Complaints and disputes

CSA Group is committed to the value personnel certifications offer to industry, and the credibility that personnel certifications offer to individuals in their chosen field. It is the policy of CSA Group that all personnel certifications are of quality and that all applicants, certified persons, employers, and interested parties have a fair and impartial forum to bring forward complaints concerning the personnel certification process or the conduct of individuals who are certified under this personnel certification.

CSA Group's policy is to provide a fair and impartial forum for complaints associated with CSA Group personnel certifications and the individuals certified under them. Anyone wishing to appeal a decision affecting their certified status or having a complaint as to the performance of a certified person or candidate may file a complaint within thirty (30) calendar days of the occurrence which the complaint is about.

Information regarding the complaint process is available to the public on the CSA Group website and/or other published documents.

Actions taken under this policy do not constitute enforcement of the law, although referral to appropriate federal, state, or local government agencies may be made about the conduct of the certified person as warranted by the individual situation. Individuals bringing complaints are not entitled to any relief for damages by virtue of this process.

Complaints are to be submitted in writing and signed to the Senior Manager, Product Development at CSA Group and include the full name, postal mailing address, and telephone number of the appellant/complainant and specify the conditions and circumstances of the appeal/complaint, along with documentation supporting the complaint. All complaints will be reviewed by CSA Group within thirty (30) days of receipt to determine merit. Written notice will be provided to the candidate/certified person if CSA Group determines the complaint is valid, so they have the opportunity to respond to the complaint.

Complaints under review by CSA Group will be completed in an appropriate amount of time, not to exceed six (6) months, unless there are extenuating circumstances that require an extended period of time. The Senior Manager, Product Development exercises general supervision over all inquiries. The Senior Manager, Product Development and personnel certification staff may be assisted in the conduct of its review by other CSA Group staff or legal counsel. Both the individual submitting the complaint and the candidate or the certified person who is the subject of the investigation (or his or her employer) may be contacted for additional information with respect to the complaint. CSA Group may, at its discretion, contact other individuals who may have knowledge of the facts and circumstances surrounding the complaint.

All review inquiries and investigations are conducted in confidence and objectively, without any indication of prejudgment. An investigation may be directed toward any aspect of a complaint which is relevant or potentially relevant. Formal hearings are not held, and the parties are not expected to be represented by counsel, although CSA Group may consult its own counsel.

The outcome of the complaint review may be a determination by CSA Group:

- For dismissal of the complaint.
- That a violation has occurred and provide the candidate or the certified person with an opportunity to correct the violation and provide written assurance that issues will not continue or recur.
- That a violation has occurred with suspension of the personnel certification for a designated period of time, or suspension of a candidate's eligibility for a designated period of time.
- That a violation has occurred and termination or revocation of a personnel certification.

  or

- That a violation has occurred and termination of a candidate's eligibility for a designated period.

For outcomes that include suspension or termination, publication of the information will only occur after any appeal and decision have been completed, or an appeal period has passed.

Individuals whose personnel certification has been terminated are not to be considered for personnel certification in the future. If a personnel certification is revoked, any and all certificates or other materials requested by the CSA Group must be returned promptly to the Senior Manager, Product Development.

If the individual disputes the decision made by CSA Group after the appeal meeting, the individual has the right to appeal to an independent and impartial Appeals Board as outlined below.

Appeals

CSA Group's personnel certifications are administered and supervised by Canadian Standards Association. Challenges to the personnel certifications are governed by CSA Groups' Complaints and Disputes and Appeals Procedures outlined in this personnel certification guide.

Any individual has the right to appeal all decisions relating to CSA Group's personnel certifications including, but not limited to testing, suspension, denial or termination of personnel certification within thirty (30) days of the date of the result or notice. A written notice of intent to appeal must be sent to CSA Group within thirty (30) business days of the individual's receipt of the decision, which forms the basis for appeal.

Upon receipt of a written request by the individual to appeal, CSA Group shall convene an Appeals Board and notify the individual and responding parties. CSA Group will arrange an appeal meeting with the individual at CSA Group's headquarters or other mutually agreed to location, within forty-five (45) business days of the receipt of the written request, with the appeal decision complete and final decision notice given to the appellant within ninety (90) days of the receipt of the written request.

The individual and the Appeals Board will attend and participate in the meeting. The appeal will not include a hearing or any similar trial-type proceeding. Legal counsel is not expected to participate in the appeal process, unless requested by the appellant at least five (5) business days prior to the meeting and approved by the Appeal Board. CSA Group and the Appeal Committee may consult legal counsel. When the individual has had a full opportunity to submit their case, the Appeals Board may declare the hearing closed and provide the individual and CSA Group with a decision, including a brief description of its reasons, within ten (10) business days. Decisions of the Appeals Board are by majority vote.

The decision of the Appeals Board either affirms or overrules the determination of the CSA Group Reviewer(s). The Appeal Committee decision is binding upon CSA Group, the candidate or the certified person who is subject to the decision, and all other persons involved in the complaint. The Appeals Board will provide notice to the appellant at the end of the appeals-handling process.

Appeals Board

The Appeals Board will consist of at least three (3), but not more than five (5) members. No current member of the Review Committee, or individual or agent or any person with any interest in the individual, directly or indirectly, is eligible to serve on the Appeals Board.

The Appeals Board hearing will be informal and private. The Appeals Board may only review whether the determination by the CSA Group Reviewer(s) was inappropriate due to material errors of fact, or failure of the Reviewer(s) to conform to published criteria, policies or procedures. Only evidence of fact and conditions up to and including the time of the Reviewer's determination are considered during an appeal. The appellant will be given a full opportunity to present any material or proof relevant to the issue. Formal rules of evidence are not applicable. The Appeals Board determines the relevance and materiality of any evidence presented.

All costs related to the Appeals Board are the responsibility of the individual and are due within thirty (30) business days of the billing, unless the Appeals Board sides with the individual's position, in which case CSA Group will be responsible for the costs.

Examination preparation and completion

General description

The GSHP System Inspector examination consists of approximately 80 multiple-choice questions. Examination questions have only one correct answer. Each exam question is independent and does not rely on the correct answer to any other questions.

CSA Group may include an additional 10 questions in the exam for statistical evaluation of future examination questions. These additional questions are not included as part of the examination score. These questions will not be identified in the exam, so it is important that the candidate answers every question completely. The candidate's grade is based only on the number of scored items answered correctly, not the additional questions.

The candidate will have three hours (180 minutes) to complete the exam. Exams are closed book. A copy of CSA/ANSI/IGSHPA C448 Series:25, *Design and installation of ground source heat pump systems for commercial and residential buildings* will be available during the exam. A list of formulas required to respond to examination questions will be made available to candidates during the exam. No additional reference materials may be used during the course of the exam. Test centres may have additional requirements.

Exam content

The exam is based on categories of tasks and knowledge required by a GSHP System Inspector Professional. The list below outlines the examination content by category for the GSHP System Inspector Certification.

1. Equipment selections
2. Ground heat exchanger installation review
3. Aboveground and interior piping inspection and review
4. Verification of flushing, pressure testing, water quality
5. Construction documents / construction support

Pass-fail standard

CSA Group's GSHP System Inspector examination passing standard is established utilizing standard psychometric guidelines and is determined using a criterion-reference technique that evaluates a candidate based on a predetermined standard of knowledge or skill. This predetermined standard is defined as the minimum score that would be expected from candidates who have the level of knowledge and skills needed to competently conduct their work responsibilities.

Exam delivery

The GSHP System Inspector examination will be delivered electronically at our computer-based testing centre locations on demand, or through remote online proctoring using your own computer.

Examination – Guidelines

During the exam, the proctor will be responsible for supervising the exam in such a way as to ensure that exam security is maintained. As such, during the test sessions, all candidates are expected to adhere to guidelines 1 through 4 outlined in this section.

A candidate's participation in any irregularities occurring during the examination, such as giving or obtaining unauthorized information or aid, as evidenced by an observation or subsequent statistical analysis, may be sufficient cause to terminate participation, invalidate the results of the examination, or other appropriate remedy.

1. Examination admission requirements

- **The candidate will NOT be admitted without proper identification.** If there are any questions concerning the type of picture ID, the candidate should contact CSA Group.
- Bring **one (1)** current form of **non-expired photo** identification with **signature** from the following list that exactly matches the first and last names on the personnel certification application:
  - Driver's license
  - State or Provincial/Federal government ID card
  - Passport
  - Employee ID card
  - Military ID card
  - Student ID card
- Arrive on time; late arrivals will not be admitted to the examination room.

2. Exam site rules and candidate responsibilities

- Smoking is NOT permitted in the examination site.
- Food and beverages are NOT allowed in the examination area.
- All personal items, including books, notebooks, other papers, all electronic equipment (i.e. cell phones, cameras, etc.), book bags, coats, etc., will NOT be allowed in the exam room and must be left outside of the exam room **AT YOUR OWN RISK.**
- Friends and relatives, including children, will NOT be allowed in the examination building.
- Computer-based testing facilities offer exam services to multiple agencies. There may be other individuals in the exam room with the candidate who are sitting for exams from different organizations. The rules for their exam may be slightly different than the rules for the CSA candidate's exam in terms of exam time and what is and is not allowed at their station.
- Computer-based tests are delivered via secure Internet connections. Internet connections are subject to the local Internet providers in the area. While it is not the norm, Internet connections can, on occasion, be lost momentarily, requiring the proctor to log the candidate back into his/her examination. If this occurs, the candidate should inform the proctor that the connection has been lost, and the proctor will assist the candidate in logging back into the exam. The exam time remaining will be exactly the same as it was when the Internet connection was lost.

3. Prohibited items in the exam room

Candidates are expressly prohibited from bringing the following items into the exam room:

- Cameras, cell phones, optical readers, or other electronic devices that include the ability to photograph, photocopy or otherwise copy test materials
- Notes, books, dictionaries, or language dictionaries
- Book bags or luggage
- Smart watches or other wearable devices with internet access
- iPods, mp3 players, headphones, or pagers
- Calculators (except as expressly permitted by the test sponsor), computers, PDAs, or other electronic devices with one or more memories
- Personal writing utensils (i.e., pencils, pens, and highlighters)
- Food and beverage
- Hats, hoods, or other headgear

If the proctor determines that the candidate has brought any such items into the exam room, the test session will immediately be stopped and voided.

4. Exam room comfort and preparation tips

Exam room temperature can be unpredictable; therefore, we suggest that the candidate bring appropriate clothing (e.g. sweater or sweatshirt without pockets) to help adapt to a cooler or warmer climate in the examination room. The candidate should bring earplugs if they are sensitive to noise.

Exam security

All CSA Group personnel certification examination content and wording of examination questions constitute confidential information protected by copyright law. Any unauthorized receipt, possession, or transmission of CSA Group examination questions, content, or materials, either before the examination, on-site, or in the future, is strictly forbidden.

The use of CSA Group examination materials for the purpose of examination preparation or training is also forbidden.

CSA Group reserves the right to take whatever measures are necessary to protect the integrity of its examinations. Violation of the CSA Group examination agreement and/or non-disclosure agreement, or the giving or receiving of aid in any CSA Group examination as evidenced either by observation at the time of the examination or by statistical analysis, or engaging in other conduct that subverts or attempts to subvert the examination or the CSA Group personnel certification process, is sufficient cause for CSA to:

- Bar an individual from the examination.
- Terminate participation in the examination.
- Withhold and/or invalidate the results of the examination.
- Withhold a personnel certification.
- Revoke a personnel certification.

  or

- Take appropriate other action.

Exam results notification

Approximately two weeks after completion of the exam, the candidate will receive official notification of the exam score from CSA Group. Candidates passing the exam and fulfilling all the personnel certification requirements will also receive a certificate with the effective date. In order to protect the candidate's confidentiality, under no circumstances will test scores be given by telephone.

Examination body of knowledge and blueprint

Knowledge reference documents

The GSHP System Inspector examination draws on concepts included in the following standards and materials. They are helpful reference materials to use in preparation for the exam:

- CSA/ANSI/IGSHPA C448 Series:25, *Design and installation of ground source heat pump systems for commercial and residential buildings*
- ASHRAE Geothermal Heating & Cooling Design Manual (Kavanaugh & Rafferty), updated 2014

Exam objectives

The table below outlines the examination content by categories of tasks and knowledge. It presents the specific objectives associated with each category of tasks and indicates the relative weight each category carries in the overall examination. These objectives were developed by a group of industry experts.

1. Equipment selections (12.5%)
Verify that the installed GSHP equipment meets the design specifications
2. Ground heat exchanger installation review (17.5%)
Given a scenario, describe how to inspect the GHX piping material and fusion methods for conformance to the design specifications and CSA/ANSI/IGSHPA C448 Series:25
Given a scenario, verify that the grout type and material sampling conform to the design specifications and CSA/ANSI/IGSHPA C448 Series:25
Given a scenario, verify drilling and borehole logs
Given a scenario focusing on installation, verify reports/logs from the loop installation to ensure that grout complies with design and CSA/ANSI/IGSHPA C448 Series:25
Given a scenario, identify incorrect grouting in an installation
Given a scenario, identify how to collect the grout sample correctly
Given a scenario about a buried closed-loop piping system that has just been completed, confirm that the piping system provides components that enable proper flushing

Given a scenario about a pond loop installation, verify the installation conforms to the design specification and CSA/ANSI/IGSHPA C448 Series:25
Given a scenario about a horizontal loop installation, verify the installation conforms to the design specification and CSA/ANSI/IGSHPA C448 Series:25
Given a scenario, verify the installation of a groundwater system
3. Aboveground and interior piping inspection and review (12.5%)
Given a scenario focusing on the inspection of above-ground and interior piping, verify if the types of pipes, types of fittings, required support, valves for proper flushing, and spacing conform to the design specifications and CSA/ANSI/IGSHPA C448 Series:25
4. Verification of flushing, pressure testing, water quality (20%)
Verify if a pressure test report complies with the design specifications and CSA/ANSI/IGSHPA C448 Series:25
Given a scenario, verify that the system is commissioned correctly, operational, and all valves are in the operational position
Given a scenario, verify that the heat transfer fluid meets specifications and CSA/ANSI/IGSHPA C448 Series:25
Given a flushing specification, verify that the appropriate flushing apparatus and process comply with CSA/ANSI/IGSHPA C448 Series:25
Given a scenario focusing on a start-up report, verify that the system pressures are in the operating range as per the design and material ratings
5. Construction documents / construction support (12.5%)
Given a scenario involving an AHJ non-compliance report, demonstrate the ability to follow up and respond appropriately
Given a scenario, demonstrate knowledge of the required items that must be included in an inspection verification report for submission to the client and AHJ
Given a scenario, demonstrate the ability to review delivery documentation, including operation and maintenance manuals as per CSA/ANSI/IGSHPA C448 Series:25

CSA GROUP™

CSA Group prints its publications on recycled stock, which contains 100% post-consumer fibre and is Processed Chlorine Free (PCF).

100%

© 2025 Canadian Standards Association. All Rights Reserved.