Certification Information

Scope - Tests a candidate's knowledge of the design and installation of residential and light commercial GSHP systems.

Qualifications

➢ This is a test and certification for TECHNICIANS in the GSHP industry. The test is designed for top level installation technicians.
➢ This test will measure what 80% of the Ground Source Heat Pump Loop candidates have an 80% likelihood of encountering at least once during the year on a NATIONAL basis.
➢ Suggested requirement is one year of field experience working on GSHP systems as an installation technician and technical training for theoretical knowledge.
➢ This certification does not require the passing of any other NATE exams to receive certification.

Test Specifications

<table>
<thead>
<tr>
<th>Open Book</th>
<th>2 Hour Time Limit</th>
<th>100 Questions</th>
<th>Passing Score: PASS/FAIL</th>
</tr>
</thead>
</table>

Listed are the topics covered by the Ground Source Heat Pump Loop exam.

<table>
<thead>
<tr>
<th>TOPICS COVERED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design and Material Options</td>
</tr>
<tr>
<td>System Layout</td>
</tr>
<tr>
<td>Pipe Joining Techniques</td>
</tr>
<tr>
<td>Trenching/Drilling Processes</td>
</tr>
<tr>
<td>Air and Debris Purging</td>
</tr>
<tr>
<td>Pressure Drop Calculations</td>
</tr>
<tr>
<td>Pump and Fluid Selection</td>
</tr>
<tr>
<td>Thermal Conductivity</td>
</tr>
</tbody>
</table>

Heat Pumps Industry References

The reference materials listed below will be helpful in preparing for this exam. These materials may NOT contain all of the information necessary to be competent in this specialty or to pass the exam.

- American National Standards Institute (ANSI) / Air Conditioning Contractors of America (ACCA) Manuals - Latest Edition
  - “D”, “J”, “QI” - Quality Installation, and “S”
- ACCA Manuals “T” and “RS” - Latest Editions
- ACCA Residential Duct Diagnostics and Repair - Latest Edition
- ACCA Water Piping and Heat Pumps - Latest Edition
- AHRI-Hydronics Section-IBO/RAH Latest Edition
- International Mechanical Code - Latest Edition with Addendum
- International Plumbing Code - Latest Edition with Addendum
- Uniform Mechanical Code - Latest Edition with Addendum
- ENERGY STAR™ Home Sealing Standards - Latest Edition with Addendum
- Duct Calculators – Sheet Metal, Ductboard, and Flexible Duct
- American National Standards Institute (ANSI) / Sheet Metal and Air Conditioning Contractors’ National Association, Inc. (SMACNA) Manuals
  - HVAC Duct Construction Standards - Metal and Flexible
- Sheet Metal and Air Conditioning Contractors’ National Association, Inc. (SMACNA) Manuals
- Air Diffusion Council Flexible Duct Performance & Installation Standards
- North American Insulation Manufacturers Association (NAIMA) Manuals
  - Fibrous Glass Duct Construction Standards and A Guide to Insulated Air Duct Systems
- International Ground Source Heat Pump Association (IGSHPA) Manuals - Latest Editions
  - Residential and Light Commercial Design and Installation Manual
  - Slinky™ Installation Guide
  - Design and Installation Standards
  - Soil and Rock Classification Field Manual
  - Grouting for Vertical GHP Systems
  - CLGS Installation Guide

Passing Score Development Process

The passing scores for the NATE tests were established using a systematic procedure (a Passing Score Study). This procedure employed the judgment of experienced HVAC professionals and educators representing various HVAC specialties and geographical areas. The passing scores were set using criteria defining competent performance. The passing score for different test forms may vary slightly due to the comparative difficulty of the test questions.

Exam Copyrights

All testing documents and questions are the copyrighted property of North American Technician Excellence Inc.-NATE. It is forbidden under federal copyright law to copy, reproduce, record, distribute or display these documents or questions by any means, in whole or part, without written permission from NATE. Doing so may subject you to severe civil and/or criminal penalties, including imprisonment and/or fines for criminal violations.