



Insider's Guide to Clean Energy Credentials



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Introduction

What is this Insider's Guide all about?

“Does this credential give me what I need to get into this field?” That’s by far the most common question we get from people interested in clean energy training. People are busy, money is tight, and no matter how bad they want to learn the information, students want a meaningful credential to show for the time they spend in the classroom.

Most people don’t know what they want. Most state offices and licensing boards don’t know what they should require. Everybody’s making it up. And the worst part is, you can spend three hours researching it all after your kids go to bed and still not have any idea what the real scoop is.

In a perfect world, students would just be interested in a good education and the credentials wouldn’t even be a concern. The world isn’t perfect though, and with state rebates driving the market for renewables and a lot of that money tied to specific credentials, we quickly learned how important it is to get smart on this stuff. So we’ve pieced together the inside information on all of ten different credentials through a long list of contacts and websites. We hope it helps you get where you want to be.

Disclaimer – HeatSpring is not a licensing board

This document is not written by any kind of governing body. Rules change all the time and this guide should be used to get the lay of the land. Don’t make any significant business or life decisions based on this information without verifying with the people who make the rules. * Send any suggested improvements to this guide to info@heatspring.com *

About the Author - HeatSpring Learning Institute

HeatSpring Learning Institute provides clean energy training to building professionals. We have trained over 3,000 professionals across the United States on Geothermal, Solar, and Building Efficiency Systems. Our headquarters are located in Cambridge, Massachusetts in the heart of the world's technology and education center.

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Why Bother Getting a Credential?

The credentials we're outlined in this white paper are different than a license. It's not illegal to operate without these credentials (unlike, say, an electrical license), so it's perfectly legitimate to wonder why you'd bother going through the trouble. Here are the top three reasons people find them valuable:

1. **Credentials give you access to state and federal rebates.** Like it or not, markets for energy efficiency and renewables are being driven by government funding right now. Very few federal programs are tied to these credentials, but almost all of the state programs have some credentialing requirement. Why? Because everyone is scared of wasting taxpayer dollars and requiring lots of credentials is the way they guard against that.
2. **Credentials are powerful marketing tools.** This is true for two reasons: 1) when customers do research to find a contractor they inevitably make their way to the website of the credentialing body. You want to be there. And, 2) it gives you and the rest of your company more to talk about when you get in front of a customer. That confidence translates into a better marketing and sales pitch.
3. **Credentials are milestones in your career and business development.** Accomplishing a long-term goal often requires picking an intermediate spot on the horizon and forcing yourself to get there. These credentials are visible markers on the longer journey of your career and your life. It sounds hokey, but this is no different than hiring a personal trainer or deciding to quit smoking – it's something you force yourself to do because you know it will feel good when you succeed.



Building Efficiency Credentials

BPI Building Analyst

Official Description¹

“Our nationally recognized credentialing program identifies individual excellence in house-as-a-system evaluation, diagnostics and installation. Stringent technical standards and requirements mean that BPI certified professionals are in demand – from homeowners, state and utility energy efficiency incentive programs and weatherization assistance programs. Go beyond a traditional energy audit to perform comprehensive, whole-home assessments, identify problems at the root cause and prescribe and prioritize solutions based on building science.”

Word on the street

BPI credentials have been around for a long time, but there has been a huge surge of recent interest because they are being tied to a lot of the government stimulus funds. Federal and state governments are trying to make sure the stimulus funds aren't wasted, so they need some minimum requirements for contractors – and BPI is the one they're using. BPI is focused on retrofitting existing buildings and is a popular choice for home performance contractors, energy auditors, and weatherization specialists. The subject matter is part building science and part safety.

Lot's of people ask, “What's the difference between RESNET (HERS) and BPI?” One short answer is that HERS is more geared toward new construction and BPI is geared toward existing buildings. HERS is the standard used in most energy efficient mortgages and PACE programs. BPI is the standard for many state rebate programs and Home Star. It's likely that BPI and RESNET will integrate these models at some point.

Testing & Requirements

There is a written exam and a field exam. After you pass them both you fill out an application for certification. Training is recommended but not required and a good training program will include both exams and give students flexibility on when they take them. Experienced contractors will be ready to take the exams right away, but career changers will need some time to study and work in the field before taking the field exam.

Interesting Facts & Special Rebates

New Jersey's 'Home Performance with ENERGY STAR' program has lots of great incentives and requires participating contractors to have BPI certification. Same thing is true with NYSERDA in New York. BPI leaders and advocates have been influential around Capitol Hill, and Home Star legislation, when it passes, will be tied to the BPI credential.

¹ Building Performance Institute - www.bpi.org or 877-274-1274



HERS Rater (RESNET)

Official Description²

“A Certified Home Energy Rater or Rater is a person trained and certified by an accredited Home Energy Rating Provider to inspect and evaluate a home’s energy features, prepare a home energy rating and make recommendations for improvements that will save the homeowner energy and money.”

Word on the street

HERS Raters are widely regarded as the most authoritative source for smart decisions on building science and residential energy consumption. Becoming a HERS rater is hard to do, so there aren’t too many of them. Building intellectuals love this system of assessing a building and assigning a rating of 0-100 – it’s so logical and practical! The slow market for new construction means there are limited opportunities for HERS raters, but that’s already beginning to change. Energy efficient mortgages and Energy Star Homes programs require the use of HERS raters and many other proposed programs are likely to do the same.

Testing & Requirements

The RESNET National Rater Test is an on-line 50 question true or false / multiple choice test. The test is open book and raters have two hours to complete the test. The test is on building science concepts and rating procedures. Raters receive the results from the test immediately after completing the test. A passing score is 80%. The test must be administered by a RESNET accredited rater training provider.

Interesting Facts

HeatSpring founder Duncan Miller was on the governor’s ‘Zero Energy Building Task Force’ here in Massachusetts and one of the recommendations the committee made was to require HERS ratings of every building when it is sold. Political, logistical and practical limitations (like where are all these HERS raters going to come from?) are big hurdles for a policy like that, but we expect to see a huge increase in demand for HERS raters in the coming months and years.

² RESNET - <http://www.natresnet.org> or (760) 806-3448



LEED AP & Green Associate

Official Description³

“The LEED Professional Credentials were developed to encourage green building professionals to maintain and advance their knowledge and expertise. A LEED Professional Credential provides employers, policymakers, and other stakeholders with assurances of an individual’s current level of competence and is the mark of the most qualified, educated, and influential green building professionals in the marketplace.[1] All the LEED Professional Credentials require adherence to the LEED Professional Disciplinary and Exam Appeals Policy and require ongoing credential maintenance requirements either through continuing education and practical experience or through biennial retesting.”

Word on the street

The US Green Building Council is huge, visible, and influential. The LEED AP credential is almost a must-have for architects these days, with architecture firms advertising their number of employees who have it. I don’t hear many contractors who have this credential and lots of engineers have issues with the LEED standards as they relate to energy efficiency. The test is very hard and people spend a lot of time studying before they take it. LEED credentials are probably best known within the design community and require you to know a bit about everything. Traditionally this has been geared toward commercial projects, though lately there has been more focus on residential markets.

Testing & Requirements⁴

The LEED AP exams consist of two parts, the LEED Green Associate exam and the applicable LEED AP specialty exam; each part contains 100 randomly delivered multiple choice questions and each part must be completed in 2 hours. Individuals must score at least 170 out of 200 in order to pass. While the LEED Green Associate focuses on concepts and terminology, the LEED AP with Specialty exam tests a candidate's in-depth understanding of one of the five main rating system categories. Candidates have to memorize performance thresholds (percentages of energy savings for example) and perform calculations during the exam. The fees associated with the LEED AP exams are a \$100 application fee, a \$300 exam fee (per exam appointment) for USGBC national members or \$450 exam fee (per exam appointment) for non-members for the combined exam and a \$150 exam fee (per exam appointment) for USGBC national members or \$250 exam fee (per exam appointment) for non-members for the specialty exam only, and a \$50 biennial CMP renewal fee.

³ Green Building Certification Institute - <http://www.gbci.org> or 800-795-1746

⁴ Wikipedia: http://en.wikipedia.org/wiki/LEED_Professional_Exams



Solar Credentials

NABCEP Entry Level Certificate

Official Description⁵

“The North American Board of Certified Energy Practitioners (NABCEP) PV Entry Level Program is designed for those individuals wanting to get into the solar field; achievement of the NABCEP PV Entry Level Exam is a way for candidates to demonstrate that they have achieved a basic knowledge of the fundamental principles of the application, design, installation and operation of grid-tied and stand-alone PV Systems.

The knowledge demonstrated by passing this test does not replace the knowledge, skills or abilities of the electrical or other construction trades, or those of other professions or degree programs that require considerably more academic and/or practical experience.

As the market grows for photovoltaics, students achieving this industry-sponsored Entry Level Exam may find that their employment opportunities are enhanced by starting the job with an understanding of the basic terms and operational aspects of a PV system. However, completing coursework and passing the exam does not qualify an individual to install PV systems.”

Word on the street

Since the requirements for taking the Installer Certification exam are so intense, most people start here. This is a credential that says, “I know how to apply my skills to the solar industry”, and when you combine it with experience as a contractor, it makes you stand out as someone who is knowledgeable enough to make a project happen. The good news is that when you decide to take your full certification exam, the training you took will count toward the education requirement.

Testing & Requirements

You have to take an approved 40-hour training course before taking this exam. Some courses are online, some are in person, and some are a blend of both. The exam itself is 60 questions and you have two hours to complete it. The test has to be taken in person, no online option available.

Interesting Facts

Connecticut now requires approved solar contractors to have taken the NABCEP Entry Level Exam. Other states are likely to follow suit.

⁵ NABCEP - <http://www.nabcep.org> or (800) 654-0021



NABCEP Solar PV Installer Certification

Official Description⁶

“The NABCEP PV installer certification is a voluntary certification that provides a set of national standards by which PV installers with skills and experience can distinguish themselves from their competition. Certification provides a measure of protection to the public by giving them a credential for judging the competency of practitioners. It is not intended to prevent qualified individuals from installing PV systems nor to replace state licensure requirements.

The target candidate for NABCEP certification is the person responsible for the system installation (e.g., contractor, foreman, supervisor, or journeyman).

Word on the street

This is the credential everyone in the solar electric industry wants to have. Some people find it hard to get because they don't have any field experience. It's the chicken/egg thing...how do I get any experience if I don't have the credentials to do it? I've seen people get experience a few ways, 1) get a job working for an existing installer, 2) sell and do your own jobs without having the credential (yes, it's possible), 3) pay extra for personalized training that includes real jobs where you are the lead installer (hard to find these opportunities).

They only offer this test a couple times each year, so you have to gear up for it and pass it the first time. Once you do you will be among a very small group within the solar industry.

Testing & Requirements

Each candidate must pass a written examination to qualify for certification. The examination will be based on supplied scenarios and situations, with approximately 60 multiple-choice questions requiring various calculations, knowledge of the relevant National Electrical Code sections, knowledge of safety practices, PV-system assessments, installation requirements, and customer interaction issues.

- Application Fee: \$100
- First time fee to sit for the PV certification exam: \$300
- Re-examination fee: \$200
- Recertification Fee (every three years): \$300

Interesting Facts

State rebates in California and Colorado are going to require full NABCEP certification in order to access state rebates. It demonstrates the maturity of the industry in those states because most states have very few certified installers. As numbers grow other states are likely to follow suit.

⁶ NABCEP - <http://www.nabcep.org> or (800) 654-0021



NABCEP Solar Thermal Installer Certification

Official Description⁷

“The NABCEP solar thermal installer certification is a voluntary certification that provides a set of national standards by which solar thermal installers with skills and experience can distinguish themselves from their competition. Certification provides a measure of protection to the public by giving them a credential for judging the competency of practitioners. It is not intended to prevent qualified individuals from installing solar thermal systems nor to replace state licensure requirements.

The target candidate for NABCEP certification is the person responsible for the system installation (e.g., contractor, foreman, supervisor, or journeyman).”

Word on the street

Solar thermal is widely regarded as the best investment the average person can make in renewables. Strip away subsidies and other financial incentives and solar thermal makes more sense than any other technology. Despite that, the industry has received less attention than solar PV. That’s slowly changing. There aren’t many NABCEP certified solar thermal installers, partially because state rebates aren’t tied to this credential, and partly because there haven’t been many options for training.

Testing & Requirements

Each candidate must pass a written examination to qualify for certification. The examination will be based on supplied scenarios and situations, with approximately 60 multiple-choice questions requiring various calculations, knowledge of the relevant National Electrical Code sections, knowledge of safety practices, PV-system assessments, installation requirements, and customer interaction issues.

- Application Fee: \$100
- First time fee to sit for the PV certification exam: \$300
- Re-examination fee: \$200
- Recertification Fee (every three years): \$300

⁷ NABCEP - <http://www.nabcep.org> or (800) 654-0021⁷

Geothermal Credentials

IGSHPA Installer Certification

Official Description⁸

“The three day comprehensive Installation Workshops are designed for GSHP developers, architects, manufacturers, distributors, dealers, installers, HVAC contractors, trenching/drilling contractors, and anyone who desires a working knowledge of this innovative technology. Representatives from public utilities, private utilities, and rural electric cooperatives can also benefit from training. Information gathered from the workshops can help utility representatives serve as a source of information regarding money-saving concepts. Upon successful completion of the workshop and passing the IGSHPA installer's exam, you will be issued IGSHPA accreditation as an installer of GSHP systems. You will receive an installer's card and a certificate. In most instances, you will receive a membership with IGSHPA after you have completed the Installation Workshop. Membership in IGSHPA is required to be an Accredited Installer and maintain accreditation.”

Word on the street

This is the entry point for almost anyone getting into the geothermal industry, but it's especially popular among contractors and drillers. Despite 30% annual growth over the past five years geothermal remains a fairly obscure technology with lots of doubters and naysayers. Historical reliance on rules of thumb and guesswork resulted in systems that didn't work...there's no shortage of stories about those systems. But a new generation of technical experts and craftspeople are changing that. A new manual recently came out with a heavier emphasis on data and proper system design. This course really just introduces students to all those concepts so they can make informed decisions when they get into the field. Plus, the IGSHPA website is also pretty effective for inbound marketing leads.

Testing & Requirements

The exam is given at the conclusion of the three-day training. IGSHPA recently contracted NATE to administer the test, so there are still a few small bugs being worked out of the process. The exam itself is 100 questions (multiple choice and true/false). Two hours to take the exam, its open book, and you need a 90 to pass.

Interesting Facts

This has always been a voluntary credential, but lately more places are requiring it. Connecticut tied \$4.5M in rebates to the IGSHPA credential and Minnesota utility companies are giving higher rebates to IGSHPA installers. On many commercial projects engineers will write it into the specs that only IGSHPA certified installers can bid on it.

⁸ IGSHPA - <http://www.igshpa.okstate.edu> or (405) 744-5175



IGSHPA Loop Installer Certification

Official Description⁹

“This new workshop will train individuals on proper construction and completion methods for vertical GeoExchange boreholes. Accreditation as an “Accredited Vertical Loop Installer” will be awarded with successful completion of the course and exam. You will receive a vertical loop installer's card and a certificate. In most instances, you will receive a membership with IGSHPA after you have completed the training class. Membership in IGSHPA is required to be an Accredited Vertical Loop Installer and maintain accreditation.”

Word on the street

This is a new credential aimed at alleviating the issues around having drillers and HVAC contractors in the same IGSHPA class. These are two professions that aren't used to working together, so for years there had been grumbling about creating separate courses. At this point the exam for the different classes is the same, but that is likely to change over time. It seems like outside entities are viewing this credential exactly like the IGSHPA Installer credential, so it's really just a difference in the emphasis within the training program. The drillers we've spoken to seem to like the change.

Testing & Requirements

The exam is given at the conclusion of the three-day training. IGSHPA recently contracted NATE to administer the test, so there are still a few small bugs being worked out of the process. The exam itself is 100 questions (multiple choice and true/false). Two hours to take the exam, its open book, and you need a 90 to pass.

⁹ IGSHPA - <http://www.igshpa.okstate.edu> or (405) 744-5175



IGSHPA Certified GeoExchange Designer (CGD)

Official Description¹⁰

“The Certified GeoExchange Designer course is designed for professional engineers, registered architects, installers, and contractors. This course is essential for individuals wanting advanced training and experience in designing GSHPs, and required for experienced individuals who wish to earn certification.

As an architect or engineer, you have specific questions about GSHP systems that you want answered. IGSHPA has designed a program to offer advanced training towards certification as a GeoExchange Designer (CGD). From an introduction to the technology to a complete review of the design process, participants learn the specific information they need to know. IGSHPA has entered into a cooperative endeavor with the Association of Energy Engineers (AEE) and the Geothermal Heat Pump Consortium (GHPC) to provide training for the Certified GeoExchange Designer Program. Participants will receive a copy of the Closed-Loop/ Ground-Source Heat Pump Systems Installation Guide, as well as other manuals in the CGD Notebook.”

Word on the street

Unlike the other IGSHPA credentials, there isn't any network of trainers to deliver this credential so it's a fairly small group of people who have it. The training materials are delivered on a CD and students attend a one-day Q&A session with an IGSHPA trainer in order to sit for the exam. IGSHPA partnered with AEE in order to make it a certification and that accounts for the difference in delivery model. This is really the only geothermal design credential out there for engineers and architects.

Testing & Requirements

The two-hour exam is administered online and you need a 70% to pass. Requirements to sit for the exam:

- Be an engineering graduate and/or Professional Engineer or Registered Architect with three years of verified, combined experience in geothermal heat pump design, heating, ventilation and air-conditioning.
- Have a four-year, non-technical degree with five years of verified, combined experience in geothermal heat pump design, heating, ventilation and air-conditioning.
- Have a two-year technical degree with eight years of verified, combined experience in geothermal heat pump design, heating, ventilation and air-conditioning.
- Have ten years or more verified, combined experience in geothermal heat pump design, heating, ventilation, and air-conditioning.

¹⁰ IGSHPA - <http://www.igshpa.okstate.edu> or (405) 744-5175



HeatSpring Entry Level Professional Certificate

Official Description¹¹

“This six-week interactive course uses reading assignments, video instruction, homework, quizzes, and a capstone lecture to give you a solid foundation for success in the geothermal industry. You can tailor the learning to your own needs by submitting questions to the instructor, and have access to the learning materials for a full 120 days. Passing the course earns you an Entry Level Geothermal Professional Certificate, and the course is pre-approved for CEUs (5 AIA HSW). This is the most comprehensive geothermal training ever offered online.”

Word on the street

Train enough people and you start to see patterns in what they find useful and how the successful students apply what they learn. This is an orientation to the industry – people spend about five hours per week on the assignments and have access to an industry veteran mentor. An online course can never replace hands-on field training, but this forces you to sit down and learn all the background stuff you need to know to make good career and business decisions.

Testing & Requirements

The 30 question test is open book and delivered online. An 80% score passes.

Interesting Facts

Students from 27 states and three countries outside the US have taken the online course in within the past year.

¹¹ HeatSpring Learning Institute – www.heatspring.com or 800-393-2044