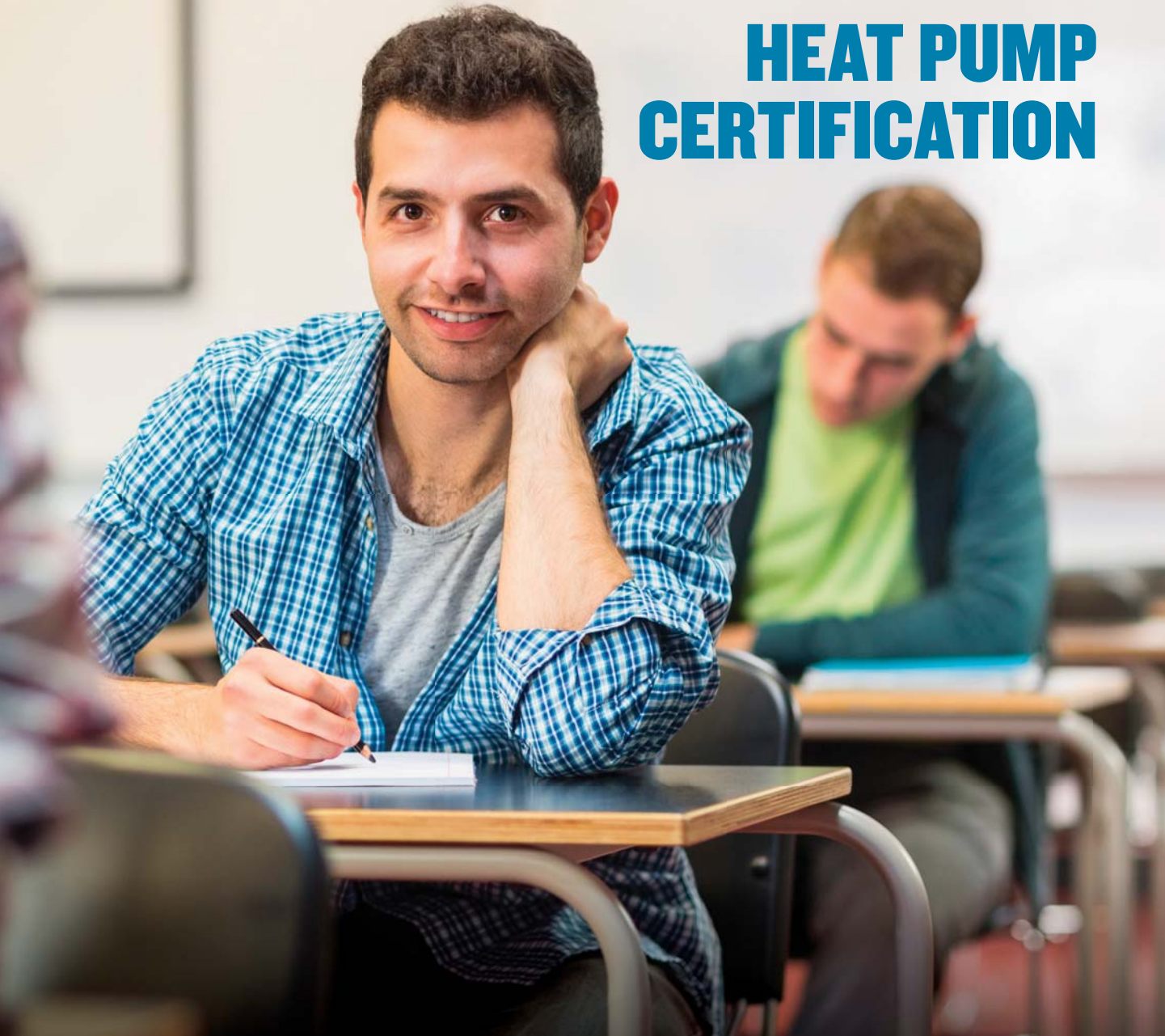


TECHNICIAN CERTIFICATION FOR THE HVACR INDUSTRY | FEB. 2023

# NATE

M A G A Z I N E

## HEAT PUMP CERTIFICATION



UPDATING NATE  
CERTIFICATION EXAMS

NATE SURVEY RESULTS  
PROVIDE INSIGHT

QUALITY  
SERVICE IS KEY

NATE-CERTIFIED  
TECH IS A CHAMP

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# NATE Keeps Exams Current

COLLABORATING WITH INDUSTRY EXPERTS AND ORGANIZATIONS HELPS NATE ENSURE THAT ITS EXAMS REMAIN AT THE CUTTING EDGE OF THE HVACR INDUSTRY.



Since NATE began offering professional HVACR technician certification in 1997, we have continuously worked to ensure our exams represent the latest technological advances, the most recent changes to industry best practices, and a real representation of the knowledge and expertise technician need when they are in the field. In this issue, we are diving into the behind-the-scenes processes NATE exams go through to make sure they are up to date for today's technician.

The NATE Technical Committee is essential to our work to keep all NATE exams up to date. It is comprised of brilliant industry professionals who dedicate their time and resources to improving industry excellence. Technical Committee members

are experts in the field, and it is truly inspiring to have our certifications guided by such expertise and passion.

With their help, NATE reviews each exam every five years and completes a Job Task Analysis of the exam's Knowledge Areas of Expertise (KATEs) to assure that the information covered by the exam is up to date, relevant, and accurately reflects the skills and knowledge that technicians require. We then use the updated Job Task Analysis and KATEs to refresh NATE exam questions. It is a detailed and rigorous process we designed to keep all NATE exams accurate and up to date as the industry evolves and technology changes. In this issue, you can find interviews with members of the NATE Technical Committee and learn more about the process we follow to ensure our exams are up to date.

In this issue, you also can find information about our work with the Pacific Northwest National Laboratory (PNNL) to update the Heat Pump specialty certification. The Pacific Northwest National Laboratory is a leader in sustainable energy technology and innovation. Through our collaboration with PNNL, we are staying ahead of the curve on important environmental changes in our industry.

With PNNL and the NATE Technical Committee, we have incorporated the U.S. Department of Energy's decarbonization curriculum topics into the job task analysis for the Heat Pump specialty exam. The updated job task analysis now includes new guidance on smart diagnostic tools, upgrading fossil fuel heating systems to electric heat pumps, and cold climate heat pumps. Read the feature article (page 8) to find interviews with the PNNL team and our collaboration.

At NATE, we are focused on being the industry leader in developing and recognizing professional HVACR technicians. And that starts with our exams. We would not be where we are today without support from experts from across the industry who join our Technical Committee. We are fortunate to have these dedicated and passionate experts from across the industry help us to ensure that our exams remain at the cutting edge. Together, we are here to develop and recognize the core of our industry—professional HVACR technicians. ●



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## DAIKIN ATMOSPHERA – OPENING DOORS TO NEW OPPORTUNITIES



Discover our next generation of single zone ductless products with low Global Warming Potential (GWP) R-32 refrigerant. Daikin *ATMOSPHERA* is available in four sizes from 9,000 to 24,000 BTU and is the first product from Daikin to use R-32 refrigerant in North America. Daikin *ATMOSPHERA* reduces the Global Warming Potential impact on the environment by up to 80% compared to similar R-410A systems. And R-32 has been shown in Daikin's labs to increase efficiency by up to 12% over R-410A with comparable products, lowering electricity consumption and indirect emissions. A noteworthy new feature includes a new hybrid cooling technology that dehumidifies even in low cooling loads and continues to maintain dehumidification once a set-point temperature is reached. The indoor unit also includes built-in Wi-Fi for connectivity to the Daikin Comfort Control App. In addition to the included wireless I/R controller, Daikin *ATMOSPHERA* is compatible with several other Daikin controllers, including the Daikin *One+* smart thermostat.

### ADDITIONAL INFORMATION

Before purchasing this appliance, read important information about its estimated annual energy consumption, yearly operating cost, or energy efficiency rating that is available from your retailer.

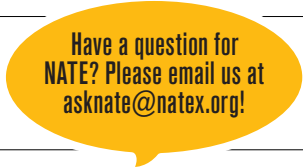


Up to 27.4 SEER  
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# You Asked, We Answered

QUESTIONS ASKED BY NATE-CERTIFIED TECHNICIANS, ANSWERED BY THE NATE TEAM AND SHARED WITH YOU.



## I HAVE NO EXPERIENCE IN HVACR BUT I WANT TO LEARN THE BASICS. WHERE DO I START?

NATE offers an entry-level certificate for technicians that are just entering the field. The NATE Ready to Work certificate covers HVACR fundamentals, with an emphasis on safety. The certificate is designed for people who are just entering the HVACR field, with little-to-no formal education or training. The exam can be taken online from any computer, any where, at any time. The exam is not proctored and comes with a downloadable study guide to help you prepare.

## IS THE INDUSTRY COMPETENCY EXAM (ICE) A NATE CERTIFICATION?

The ICE certification is not a NATE certification. While NATE administers the ICE exam, NATE certification exams are more advanced than the ICE. Successful ICE candidates with a recommended two years of experience in the field are set to begin preparation for NATE certification exams.

## DOES MY STATE LICENSE GIVE ME NATE CREDIT?

Yes, it does! For continuing education hours (CEHs), NATE accepts proof of training that is related to a certified technician's specialty, or in general areas such as safety, electricity, controls, codes, and regulations. The credits for state license renewals cover these areas, so once you submit proof of the type and duration of the training, NATE can award credits.

## Word Search

1. Development	R E V I E W D A G D T W C M T
2. Review	E B B I C G N X C N F O E N E
3. Accuracy	G E S A F E T Y E C N L A L G
4. Integrity	D P C U T D G M N T U R Q R I
5. Expert	E P H I P L P C R E E R M I W
6. Heat	L I G N V O D A X G F T A E H
7. Service	W Y O T L R C P I V W K I C J
8. Knowledge	O G C E Y T E R W N L N N R Y
9. Refrigerant	N L V G O R F S W A X T T F A
10. Safety	K E Y R T E T Y F I T R E C B
11. Maintenance	D Z N I R D O S I D B W N D H
12. Contractor	W B G T L I J P U C Q Q A I F
13. Certify	P T L Y V I G W G D N T N A W
14. Industry	V Y O B M A H N M Y N Y C J J
	I H K J N P F E H P Z I E D W

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# NATE News

## CONTRACTORS: SIGN UP AS A NATE TESTING ORGANIZATION

Eligible contractors can save time and money by ordering exams directly from NATE to test their technicians. As a NATE Testing Organization, you can set your own exam times to best fit your company’s schedule. To register, you must complete a free NATE Testing Organization application. The application is available online at [www.NATEX.org](http://www.NATEX.org).

To become a Testing Organization, you must employ at least five technicians, have an individual who can register and act as proctor for the exams, have the ability to conduct at least one test session per year, and have space such as a training or meeting room to conduct exams. For more information, reach out to NATE at [askNATE@natex.org](mailto:askNATE@natex.org).



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## TWO WAYS TO BECOME NATE-CERTIFIED

NATE now has two certification pathway for HVACR technicians, the Certified HVAC Professional (CHP-5) and the Traditional Pathway. NATE’s goal with the CHP-5 is to offer technicians different pathways to NATE certification so they can choose the exam pathway that best fits their level of experience and learning style. With the CHP-5, technicians can earn their NATE certification through a series of five 30-question exams, each on a different subject domain: HVAC Fundamentals, Electrical and Controls, Comfort and Airflow, Installation, and Service. Technicians can take the exams in any order they choose and can take up to six months between each exam to study and prepare.

The NATE Traditional Pathway consists of the 50-question Core Exam and a 100-question Specialty exam. Technicians can choose between 13 specialty exams with an emphasis on installation or service.

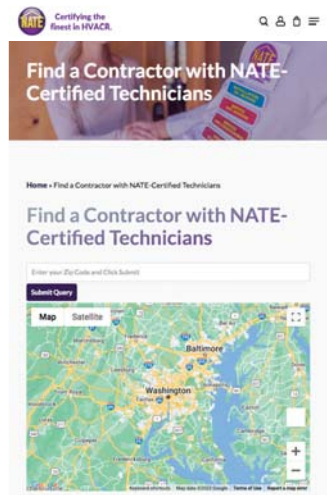
You can learn more about NATE Certification Pathways at [www.NATEX.org](http://www.NATEX.org).

## EXPAND YOUR REACH FOR FREE WITH NATE'S CONTRACTOR LOCATOR

Did you know that NATE allows contractors of all sizes to participate in the NATE Consumer Contractor Connection (C3) program?

When you become a member of the C3 program, you gain access to new customers and benefit from association with the leading certification organization in HVACR. As a C3 member, you can register for a free listing on our contractor locator that receives over 5,000 visits monthly.

List and advertise your business for free on the NATE Consumer Contractor Connection website today! To qualify, at least 25% of a contractor’s eligible service and installation technicians must be NATE-certified. ●



# Industry News

## DAIKIN RECOGNIZED FOR EXCELLING IN CLIMATE CHANGE MEASURES

CDP, an international environmental non-profit organization that operates a global environmental information disclosure system for companies and local governments, has included Daikin Industries Ltd. on its “Climate Change A List.” CDP evaluated 15,000 companies and selected the top 283 global companies.

As part of its mission, CDP asks companies and local governments to disclose information on environmental issues—such as reducing greenhouse gas emissions, safeguarding water resources, and protecting forests—based on requests for information from global institutional investors with a high interest in environmental issues.

As a manufacturer of both air conditioners and refrigerants, Daikin provides products and services around the world that utilize environmental technologies. However, its products can increase electrical power consumption, which impacts global warming.

To promote business growth while also mitigating impact to climate change, Daikin established its “Environment Vision 2050,” which aims for net zero greenhouse gas emissions from company business activities in 2050. To achieve this, the company has established measures at the production stage as well as developing and increasing environmentally conscious products. According to Daikin, it is confronting the entire value chain, including the building of a refrigerant recovery and reclamation system.

## 2023 REPORT ANALYZES HVACR TRENDS

ASHRAE and AHRI surveyed industry associations, manufacturers, and experts in the field to compile its 2023 Trend Report of the HVACR industry. Respondents were asked to comment on opportunities, threats, and challenges for the near future and to provide feedback on their specific areas of expertise.

Based on the responses, several common industry themes took center stage. Participants identified the following:

### REGULATIONS REMAIN A DRIVING FORCE TOWARDS A CLEANER FUTURE

- Decarbonization
- Green Transition
- New standards with quicker onboarding
- M1 and refrigerant updates

### THE BUILT ENVIRONMENT IS EVOLVING

- New demands for efficiency
- IT and the connected consumer
- Automation
- Awareness of long-term benefit with higher performing systems

### SUPPLY CHAIN RECOVERY

- New practices adapted out of necessity
- New ways of moving product across the chain
- Rebounding and future planning
- Transportation models

### INFLATION AND RECESSION

- Forecasts and planning
- Expectations
- The new role of HVACR in the budget

### EXPANSION, GROWTH, AND MEETING DEMAND

- Managing multiple areas of growth within the industry
- Educating first the workforce and then the end user
- Managing and meeting expectations—the consumer is more involved than ever before

### CYBERSECURITY

- Building Control
- Threat considerations
- Planning for a connected future

In addition, participants identified **workforce and training** as key industry themes. They noted the need for a strong and skilled workforce—as well as projected increasing demands for the industry. Training will play an important role in the flow of information across the chain, especially with regard to changing regulations, indoor air quality, and application updates.

For more information on this report, visit [ahrexpo.com](http://ahrexpo.com).

NATE recently released the results of a survey whose goal was to better understand technician certification needs in the HVACR industry. NATE plans to use the survey information to inform its work over the coming months and to help contractors provide better training and resources for their technicians (See the article in this issue titled, *NATE Survey Results Provide Insight*, page 16.)

# Heat Pumps Are So Hot (*and Cool*) Right Now

Photo: 259849156 © Welocma | Dreamstime.com



## NATE UPDATES ITS HEAT PUMP SPECIALTY EXAMS AND STUDY GUIDES AS THE TECHNOLOGY SEES A SPIKE IN U.S. SALES AND A BOOST IN RESIDENTIAL ADOPTION.

Heat pump technology is not only a hot topic in the HVAC and building energy communities but also mainstream media such as *The Washington Post*, *The New York Times*, *Fast Company*, and others that are extolling the virtues of this energy-efficient technology.

The increased interest in heat pumps comes at a time when some cities and states across the U.S. are focused on curtailing or eliminating the use of fossil fuels for heating and cooling buildings. Heat pump sales have soared in the U.S. in the last few years because of these legislative efforts, federal energy regulations, and state/federal incentives.

“Heat pumps, powered by low-emissions electricity, are the central

technology in the global transition to secure sustainable heating,” notes a November 2022 International Energy Agency (IEA) report, “The Future of Heat Pumps” (<http://bit.ly/3QCXnmD>). “Heat pumps currently available on the market are three-to-five times more energy efficient than natural gas boilers. They reduce households’ exposure to fossil fuel price spikes, which has been made all the more urgent by the ongoing global energy crisis.”

The report continues: “Government energy security concerns and climate commitments would make heat pumps the primary means of decarbonizing space and water heating. As the proven technology of choice to decarbonize heating, global capacity of heat pumps jumps from 1,000 GW

in 2021 to nearly 2,600 GW by 2030 in this scenario, boosting their share of total heating needs in buildings from one-tenth to nearly one-fifth.”

The ongoing Russian invasion of Ukraine has severely affected the European Union and Britain, but it also has brought energy-efficient technologies to the forefront in this country.

“A whopping 87% of U.S. homeowners surveyed said they experienced higher prices in at least one household service or utility category over the summer, according to SaveOnEnergy.com,” explains a December 2022 CNBC news story (<https://cnb.cx/3X7ea3H>). “There’s another possible bonus: Incentives being offered through the recently passed Inflation Reduction Act of 2022.”

The report adds “Especially when used in connection with clean electricity sources like rooftop or community solar, a heat pump—a single electric appliance that can replace a homeowner’s traditional air conditioner and furnace system—can warm and cool a home with less planetary harm.”

With amplified awareness of heat pumps, it is imperative that HVAC professionals thoroughly understand the technology so they can design and install these systems properly.

“In order to certify the best technicians in the industry, it is vital that we understand and recognize how industry trends, evolving best practices, and new technical knowledge are affecting our technicians’ work,” notes NATE’s COO John Lanier.



## EDUCATE THE HVACR INDUSTRY

Heat pump systems are comprised of ducted air-source heat pumps, ductless air-source mini-splits, and ground-source or water-source geothermal heat pumps (<http://bit.ly/3G-ZT4Pa>). A fourth type, absorption heat pumps, can use heat sources such as steam solar-heated water, air- or geothermal-heated water or natural gas combustion.

To help the HVACR industry train and certify technicians on heat pump technology, NATE developed an air-to-air heat pump certification exam for service and installation — one of the specialty exams offered in the traditional certification path. Techs also can take the ground-source heat-pump loop installer exam, a joint accreditation with the International Ground Source Heat Pump Association.

Lanier notes that heat pump certification is one of NATE's first specialty certifications. "In our early years, NATE offered just 10 specialty area certifications: a service and an installation specialty in air conditioning, air distribution, heat pump, gas heating, and oil heating."

In 2021, NATE decided to update the exam during its regular review process. "NATE regularly reviews exam questions flagged as not performing well by looking at exam statistics," Lanier explains. "Additionally, every five years or so, we review and update an exam to ensure the certification is up to date with what technicians are currently facing in the field."

To accomplish this, NATE partnered with Pacific Northwest National Laboratory (PNNL), located in Richland, Washington, to incorporate the decarbonization curriculum supported by the U.S. Department of Energy (DOE) and developed by PNNL into the Job Task Analysis for the heat pump specialty certification.



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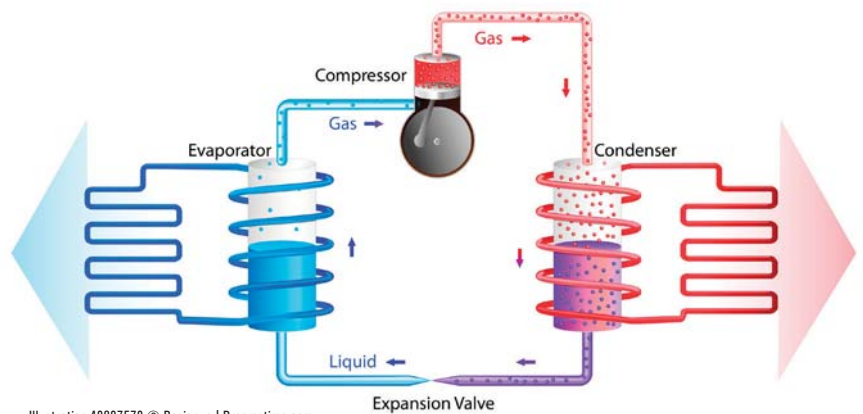


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"Due to rapidly changing technologies in the HVACR industry, we must continually evaluate our certification standards to remain at the top of the field," Lanier says. "PNNL is a leader in sustainable energy technology and innovation. By partnering with PNNL to incorporate decarbonization topics, NATE ensures that we stay ahead of the curve on important environmental changes in our industry."

A PNNL team was put together, including mechanical/building research engineers Jamie Kono and Christian Valoria, that worked with NATE's Gurminder Sidhu, senior director of business operations, and Anthony Spagnoli, director of testing and education.

Kono jumped into the project after joining PNNL in March 2022; Valoria connected with Kono via two DOE-sponsored residential technology campaigns aimed at increasing

the adoption of underutilized or new energy-efficiency technologies for residential buildings.

"Anthony, Gurminder, and I shared the requirements for the heat pump exams and the study guides, and we compared those with our materials and identified places where they could add to it," Kono says. "They have since added elements to their Job Task Analysis, which informs the heat pump exams."

## NOW AVAILABLE FOR COLD CLIMATES

Kono notes that significant advances in heat pump technology have occurred in the last decade.

"We now have heat pumps that can run down to -22° F and with significant capacity, about 72% of its rated capacity; a conventional system at 17° F would be about 50% capacity," she explains. "The technology is

there. I think people are using heat pumps more these days, but there's a lot of room for increased adoption, specifically in colder climates where fossil-fuel systems are the traditional method."

PNNL researchers talked to many people who went to their contractors to replace a gas furnace with a heat pump, and those contractors refused: "Nope, can't do it." "It's not going to work." "It's too cold."

"It's not the case anymore, and we need to let people know because of the various pushes from local and federal levels or decarbonization efforts," Kono says.

Valoria notes that HVACR contractors who don't educate themselves and their technicians are missing opportunities to increase revenue while giving their customers what they want.

"Contractors or technicians who aren't interested in learning about these new technologies and advancements such as heat pumps and how to install them correctly are missing out, specifically because of all the legislation promoting it, such as the Inflation Reduction Act," Valoria notes. "Plenty of utilities also offer financial incentives for installing high-efficiency heat pumps."

Valoria adds that heat pumps are becoming mainstream and draws comparisons to electrification of the transportation sector: "The only time most people think about their heating and cooling systems is when they're not working. The fact that people are thinking about heat pumps as an energy-efficiency measure to electrify and decarbonize their homes is significant, like people are doing with electric vehicles."

Kono notes that homeowners and building owners may not understand how heat pumps can save them money. Electricity rates are not as volatile as natural gas rates. "Depending on

where you're at, what your loads are and what your utility rates are like, heat pumps are going to be cheaper to operate than a fossil-fuel heating system," she says. "However, there are other places where it's going to be the reverse."

Another option is installing dual-fuel heat pumps: keeping the existing heating system and adding a heat pump. "Homeowners can take advantage of the heat pump's efficiency and save money that way but keep their other fuel system for backup," Kono explains.

Other barriers to adopting heat pump technology: "A number of non-cost barriers hold back consumer adoption of heat pumps today," the IEA report notes. "These include lack of information, split incentives for building owners and tenants, and building regulations. Particular attention needs to be paid to addressing barriers to the installation of heat pumps in multi-family and commercial buildings, which account for a low share of sales today."

Kono says that people install heat pumps in homes and buildings that didn't have air conditioning before. "During extreme heat events, vulnerable populations such as the elderly and homeless are at significant risk of dying from heat-related illnesses," she explains. "Having air conditioning available is not only for comfort but also can be lifesaving, making the community more resilient."

## ENERGY-EFFICIENCY PARTNERS

NATE expects the updated exam and study guide to be released at the same time, which will be early this spring. Lanier says: "The updated Job Task Analysis for the exam now includes new guidance on smart diagnostic tools, upgrading fossil-fuel heating systems to electric heat pumps, and cold-climate heat pumps."

Kono adds that it's an ongoing process, and PNNL will continue giving NATE input on the direction of the new material: She has agreed to be a subject matter expert when NATE develops the specific exam questions.

Industry collaboration is a cornerstone of NATE, as it has sought advice from HVACR manufacturers, distributors, contractors, and training entities to ensure that exams cover the latest equipment augmentations and diagnostic technology.

"Frequently, extensive energy waste in your home can be attributed to improper unit sizing, installation, and maintenance, leading to equipment that does not run at peak efficiency," Lanier says. "Working with technicians that understand the complexities behind the heating and cooling equipment is the biggest step we can take to fixing these issues and increasing residential energy efficiency in our homes."

"We have always found it valuable to partner with organizations dedicated to energy efficiency," Lanier says, "and we look forward to continuing our work with PNNL and others in the future."

Lanier adds that NATE has previously worked with utility companies to promote and offer incentives for companies to employ NATE-certified technicians, including the Tennessee Valley Authority, Nebraska Public Power District, Eversource, and Xcel Energy.

Kono agrees that the collaboration was beneficial for PNNL and NATE. "We come from an engineering and a DOE background; they come from an educational angle. NATE is much more tuned into what HVACR technicians need, and we can give them the science and engineering to create those assets. Aligning our thinking on heat pumps was fruitful." ●

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Kelly Faloon is a contributor to the *NATE Magazine*.

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# Updating NATE Certification Exams

THE PROCESS HELPS ENSURE THAT EXAMS STAY RELEVANT AND INCORPORATE NEW DEVELOPMENTS IN THE FIELD.



**N**ATE updates its certification exams on a regular basis to make sure they stay relevant and incorporate new developments in the HVACR field. The NATE Technical Committee regularly reviews the exams and has updated many of them over the years.

The process of updating NATE certification exams is complex. All exams follow a rigorous development cycle designed to ensure accuracy, integrity, and defensibility. The exams are developed with the assistance of the NATE Technical Committee, which is comprised of subject matter experts from different sectors of the industry. The process can be grouped into three main parts: the Job Task Analysis, item writing, and beta testing.

“The first step, Job Task Analysis, involves subject matter experts reviewing the skills and job knowledge necessary for a technician to competently perform his or her job,” says John Lanier, NATE chief operating officer. “Those skills and job knowledge areas are then validated by a larger survey sent out to members of the industry. The second step, item writing, is where actual exam questions are developed. The items are aligned to the Job Task Analysis developed in the first step. During the third step (beta testing the exam), qualified candidates take the exam, after which the results are analyzed and a passing score is set.”

How does NATE ensure that the exams stay up to date and relevant? NATE regularly reviews items that are flagged as not performing well by looking at item statistics, according to Anthony Spagnoli, NATE director of testing and education. “Also, every five years or so, we redo the entire Job Task Analysis for an exam to ensure that it’s up to date with what technicians are currently facing in the field.”

As part of the process, it is important to identify new developments in the HVACR field.

While redoing a Job Task Analysis, a team of subject matter experts reviews the current Job Task Analysis and makes additions or removes content

that is not relevant. The results are then surveyed out to the industry to find anything the subject matter experts may have missed. "For new exams, members of the industry will contact NATE with a need, and we may develop a new exam based on that, for example the Low-GWP Refrigerants Exam," Spagnoli says.

The new Job Task Analysis becomes a blueprint for the updated exams. The goal of the analysis is to ensure that all work activities and knowledge areas pertinent to the practice of heating and air conditioning service and installation are comprehensively and accurately represented in NATE exams. Once the analysis is complete, the exam is reviewed. "We add any new and important responsibilities or knowledge areas that are not included on current test specifications, and remove exam questions that are no longer included in the analysis," Spagnoli says.

What is the time frame for updating the exams? Simple updates of reviewing items and making those updates takes about two months from start to finish. Redoing the new Job Task Analysis and then updating the exams can take six to eight months. "The study guides are developed using the same Job Task Analysis as the exams, but those working on the study guides do not have access to the individual items from the exams to ensure that we are not 'teaching to the test,'" Spagnoli adds.

## JOINING TOGETHER

Collaborating with the Technical Committee is crucial to the process. Members of the Technical Committee are the subject matter experts who participate in the Job Task Analysis review and item writing. "When we develop a new exam or review an existing exam, we ask a select group of Technical Committee members to join the Job Task Analysis," Spagnoli

"WHEN WE DEVELOP A NEW EXAM OR REVIEW AN EXISTING EXAM, WE ASK A SELECT GROUP OF TECHNICAL COMMITTEE MEMBERS TO JOIN THE JOB TASK ANALYSIS. THE ANALYSIS INVOLVES A TWO-DAY, IN-PERSON MEETING TO ESTABLISH AND DEFINE THE PRIMARY DOMAINS, TASKS, AND RELATED KNOWLEDGE, SKILLS, AND ABILITIES REQUIRED."

- Anthony Spagnoli, director of testing and education, NATE



notes. "The analysis involves a two-day, in-person meeting to establish and define the primary domains, tasks, and related knowledge, skills, and abilities required."

Before beginning the item writing portion (question writing), the Technical Committee also meets to review proper procedures and spends time independently writing items. The final process, beta testing, is a three-hour virtual meeting in which the Technical Committee reviews items on the final form of the exam as part of the process to set the passing score. "For new exams, this is a very involved process," Spagnoli says. "For example, we introduced the Low-GWP Refrigerant Exam in 2021, but the first Job Task Analysis meeting was in May 2018. When we review and update existing exams, it usually takes six months to a year to complete."

At the Job Task Analysis meeting, the Technical Committee members determine what domains and job knowledge areas are needed for the new exams, or they review the current ones for existing examples. Within each domain, the committee assembles the full list of job tasks a technician would be able to perform if he or she has a mastery of that area.

Once the test specifications are determined, exam questions are developed to match the job tasks. Technical Committee members write these questions individually. NATE then reviews the questions. For existing exams, this means removing questions that are no longer needed and creating new questions for new job tasks.

A new exam is then created using the updated bank of questions, making sure that the distribution of questions matches the Job Task Analysis. "You can see in the exam Knowledge Areas of Technician Expertise (KATE) the question distribution across the different domains," Spagnoli says. (Go to: <https://natex.org/technician/take-an-exam/kate>. Core Exam KATE percentages for each domain are listed on page 4.) Before adoption, new exams are reviewed and revised; the exams are then beta tested. The Technical Committee gives final approval of new and updated exams.

## TECHNICAL COMMITTEE EXPERTISE

Members of the NATE Technical Committee include Paul Foden, Bob Feathers, Jim Hughes, Jamie Kitchen, and Charles R. White. These individ-

uals have a wide range of industry experience.

The Technical Committee makes sure that the questions used in examinations meet the requirements of technicians out in the field today. This is based on the expected experience of those who will be taking the tests, according to Jamie Kitchen. "The committee members must follow the trends of the industry—recognizing that some equipment will be seen less in the field while newer or alternative types will become more prevalent over time. This also applies to changing code requirements such as those for flammable refrigerants."

How does the committee determine if an exam needs to be updated? Many of the members are testing and training providers themselves, according to Bob Feathers. "We receive feedback from many technicians who test or attend classes for recertification. We share this feedback among ourselves and with NATE. Along with the data NATE collects, this usually determines if individual questions need to be replaced or changed to ensure that valid questions are in place."

Here is where exam statistics come into play, says Jim Hughes. "We don't look at all the questions in a test, but we do look at questions where the number of correct or incorrect responses does not match up with what we expect. Should a high percentage of people get the question correct, it could mean the question or responses are worded in a way that makes the question too easy. On the other hand, if a high percentage of people get the question incorrect, it may be the result of how the question is worded, or it may be the question is no longer relevant."

Per NATE's mission, the Technical Committee strives to ensure that exams stay relevant and include the latest developments in the HVACR field. "It all starts with communicating with

each other, challenging each other, and listening to each other," says Paul Folden. "It starts with respect for our industry and maintaining high ethical standards."

Typically, each certification gets updated every five years. "This is so we can bring in new technologies and remove out-of-date materials," says Feathers. "We receive information from all facets of our industry including OEMs, educational professionals, and contractor associations, to name a few."

Charles R. White says that the process is ongoing. Having the committee meet on a regular basis allows new developments to be discussed and incorporated in a timely manner. "Virtual meetings have helped facilitate this process, but there are still occasions where committee members will meet face-to-face. Having a broad cross section of members helps NATE keep its ear to the ground and include new and emerging content."

Committee members review exam statistics during the process. In fact, statistics are an excellent way to determine if a question is becoming irrelevant by monitoring the success rate of test takers getting the correct answer, according to Kitchen. "If there is a drop in the level of correct answers to a specific question, this can indicate that the question no longer meets the requirements of today's technicians and may be obsolete or irrelevant."

Every test question is tracked with the results from all candidates. Those numbers are compared across the candidate's performance on the tests, and many candidates can develop patterns, according to White. "Essentially, if a candidate passes the test but fails a particular question, or if a candidate fails the test but passes a question, or if everyone fails or passes a question, or it seems there are multiple correct answers to a question, or maybe some other scenario—these

patterns can indicate that certain questions need review."

Testing software will indicate questions that require review but may not indicate what is wrong, White adds. "The committee must evaluate the questions to determine if something is incorrect, misleading, no longer current practice, or, in some cases, is correct and represents an area of technical weakness. The committee always strives to validate the questions and connect the information to technical substantiation."

Each committee member's professional background helps serve the overall needs of the Technical Committee. "As someone who is an engineer and technical trainer, I am involved in the development and implementation of new technologies and applications. I also develop training programs to share this knowledge with others," Kitchen says.

He adds, "It is hard to sell something when it is not clear how it works or if it will be beneficial and relevant going forward. Not all new technologies are successful, and the ones that are will be widely adopted in their specific markets. It is the successful ones that will need to be accommodated by the development of new questions to ensure that the technicians who will be working with the technology understand them and can be proficient."

What lies ahead for upgrading NATE certification exams? Feathers says that keeping up with new technologies, refrigerants, and industry changes will be essential to keep the HVACR workforce trained and certified. "It's always best if we can stay in front of things and be prepared for the future. I believe energy efficiency, proper system design, and equipment commissioning will soon take a seat at our table." ●

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Neal Lorenzi is a contributor to the *NATE Magazine*.



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# NATE Survey Results Provide Insight

CONTRACTORS AND TECHNICIANS AGREE THAT  
NATE CERTIFICATION IS WORTH PURSUING.



**N**ATE recently worked with Decision Analyst Inc., Arlington, Texas, a custom research consultancy firm, to conduct an anonymous survey of technicians and contractors to better understand technician certification needs. NATE plans to use the survey information to inform its work over the coming months and to help contractors provide better training and resources for their technicians.

Among the contractors and technicians surveyed, NATE certification was valued highest among HVACR

certifications (86% among technicians). The survey also found that four out of five contractors prefer their technicians to be NATE-certified. Contractors explained that they see their NATE-certified technicians as better prepared, more confident, and more satisfied in their jobs than non-certified technicians.

## IN THE BEGINNING

NATE had three main goals in conducting this survey: learn how to better support contractors and technicians;

learn more about how NATE is making a difference in the HVACR industry; and give technicians and contractors the opportunity to share feedback with NATE.

“Our most important goal was to learn more about how NATE can better support contractors and technicians,” says Gurminder Sidhu, NATE senior director of business operations. “We have worked hard the last several years to provide resources to technicians beyond certification.

“We introduced study guides and the NATE Training Academy online platform to give technicians more ways to study and prepare for their exams,” continues Sidhu. “We created a new certification pathway, the CHP-5, to better mirror the ways new technicians are learning and developing in the field. We’ve been promoting our Consumer Contractor Connection Program (C3) to help contractors manage their technicians’ yearly continuing education hours.”

“With all these changes,” she notes, “it was important to us to see if these new initiatives are helping our industry and keeping NATE a valuable part of a technician’s career. One goal was to learn more about the impact that NATE certification has on the HVACR industry. We want NATE-certified technicians to stand out in the field and have successful careers.”

Another goal was to give technicians and contractors the space to share how NATE is impacting them, what they would like to see from NATE in the future, and what is impacting their work today. “Getting technician and contractor feedback has always been important to us,” Sidhu adds. “We changed our recertification standards to renewing every two years back in 2015 based on feedback from technicians, and we began developing our study guides in 2018 when we received a lot of contractor feedback that they were looking for more digestible, graphic-heavy study materials for their technicians.”

Daisy Weill, NATE marketing manager, adds: “When we talk to technicians and contractors about the value of NATE certification, it is important that we have the numbers to support what we are saying. It makes much more of an impact to be able to say 86% of NATE-certified technicians value NATE certification more than any other HVACR certification. It has been immensely valuable to be able to weave this information into our website, informational materials, and webinars.”

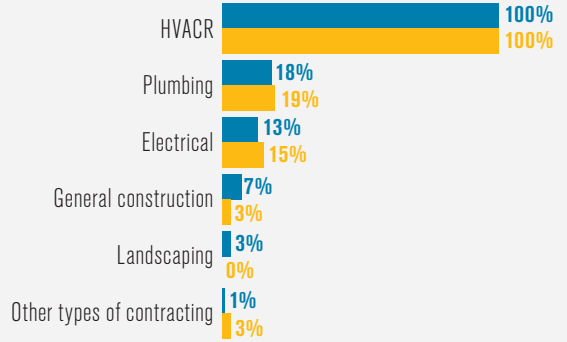
**THE RIGHT PARTNER**

NATE worked with Decision Analyst Inc. to create and implement the survey, having worked with them in 2006, 2008 and 2013 as well. “It was important for us

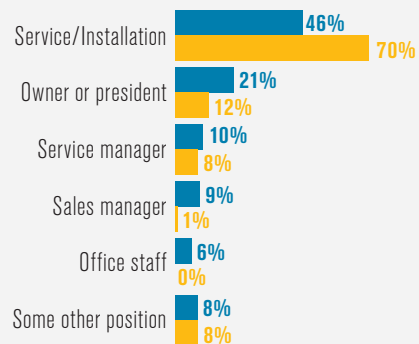
**FIRMOGRAPHIC PROFILES**

- Contractor Firmographic Profile
- Technician Firmographic Profile

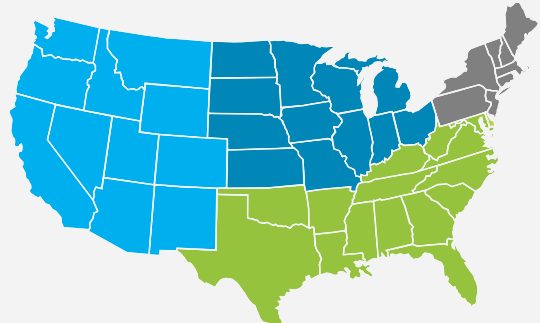
**SERVICES PROVIDED**



**JOB DESCRIPTION**



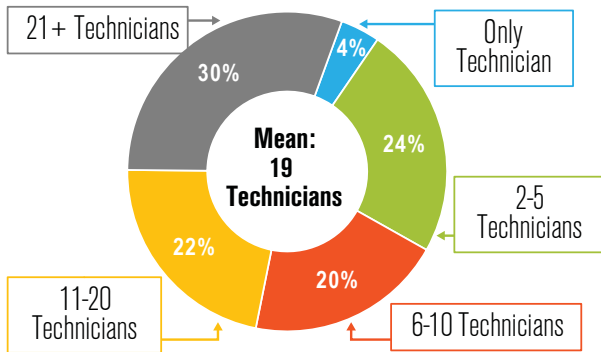
**REGION**



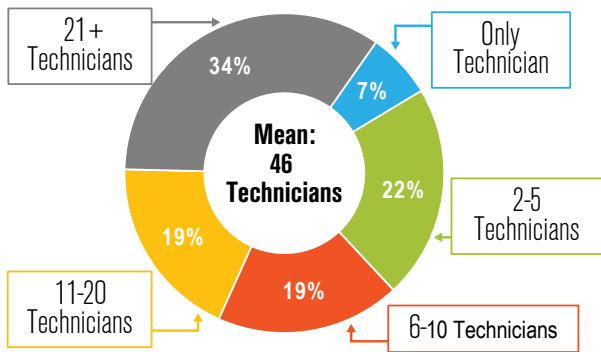
Region	Contractor	Technician
South	27%	42%
Midwest	37%	24%
West	18%	21%
Northeast	12%	11%
State Not Available	6%	0%



## CONTRACTOR FIRMOGRAPHIC PROFILE



## TECHNICIAN FIRMOGRAPHIC PROFILE



to work with an outside organization to make sure that the survey was unbiased, confidential, and included questions created using rigorous research methods,” Weill says. “Decision Analyst did an impeccable job with our previous surveys, and we trusted them to put together a survey that addressed all of our needs.”

Decision Analyst worked closely with NATE to understand the business needs and to craft a customized survey to address the objectives, according to Hillary Semmelman, senior vice president, client service, Head of Home Comfort Team, Decision Analyst. “Because we have a specialty in HVACR, we understand the unique business model, including the multi-level distribution channel and the various roles in a contractor organization. To support a variety of work in this industry, we have resources dedicated to interacting with and gaining insights from a variety of industry players.”

Roughly six months passed from the beginning stages of the survey to delivery of the final report. Research such as this often moves more quickly (two-three months).

However, this study required extra time during data collection as Decision Analyst paused the research during the height of the technicians’ busy season and resumed data collection after a brief hiatus. Decision Analyst surveyed 250 contractors, 200 NATE-certified technicians, and 150 non-NATE certified technicians. Data collection was conducted from July 7 to Sept. 27, 2021.

The online survey took five minutes to complete. The aim was to create a concise, short survey to make it easy for technicians and contractors to finish. The questions changed depending on the survey taker. Specialized questions were aimed at contractors, NATE-certified technicians, and non-NATE-certified technicians. For example, the survey asked non-NATE-certified technicians about the barriers stopping them from pursuing NATE certification.

Contractor topics included:

- What certifications they held (both NATE and non-NATE);
- What type of assistance they provide their technicians for training, certification exams, and continuing education; and
- How their NATE-certified technicians perform compared to non-NATE certified technicians.

NATE-certified technician topics included:

- What certifications they held (both NATE and non-NATE);
- What type of assistance their employer provided them for training, certification exams, and continuing education;
- How NATE-certified technicians perform compared to non-NATE-certified technicians; and
- Reasons why they became NATE-certified.

Non-NATE-certified technicians topics included:

- What certifications they held;
- What type of assistance their employer provided them for training, certification exams, and continuing education;
- Reasons why they are not NATE-certified; and
- If they are considering NATE certification, and if so, why.

## SURVEY RESULTS

Survey responses produced the following results.

- On average, three employees per company hold one NATE certification, and three employees per company hold multiple NATE certifications.
- Ninety-five percent of contractors provide some

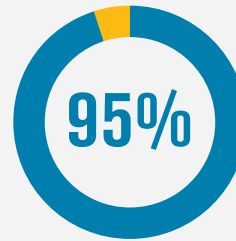
type of assistance to their employees to help them with their NATE certification. That includes helping pay for training, paying for exams, help paying recertification fees, or helping in another way.

- Eighty-four percent of NATE-certified technicians receive some type of assistance from their employers to help them with their NATE certification. That includes helping pay for training, paying for exams, help paying recertification fees, or helping in another way.
- Sixty-two percent of contractors have greater confidence in their NATE-certified technicians.
- Fifty-two percent of contractors believe NATE certification is worth the effort and cost for their technicians to obtain.
- Seventy-five percent of technicians believe NATE certification is worth the effort and cost to obtain.
- Seventy-nine percent of contractors prefer their technicians to have NATE certification.
- Fifty-five percent of all callbacks are among non-NATE-certified technicians.
- Eighty-six percent of NATE-certified technicians value NATE certification the most over any other HVACR certification.
- Sixty-three percent of NATE-certified technicians are considering additional NATE certifications. This could include additional specialties or one of NATE's professional certification exams such as the Low-GWP Refrigerants certification exam.
- Seventy-four percent of NATE-certified technicians believe their NATE certification gives them more satisfaction and confidence in their job.
- Four out of five (82%) contractors either currently hold an HVACR-recognized certification or have an employee who holds a certification.
- Nearly two-thirds of technicians who are not NATE-certified (65%) are considering becoming certified with NATE.

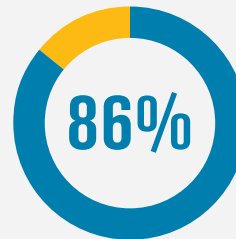
The research results are useful in both confirming some knowledge and learning new things, according to Semmelman of Decision Analysis. "The 250 contractors and 300 technicians included in the study provided useful insights into the value of NATE certification as well as some of the barriers to seeking this certification. Interestingly, many technicians seek multiple certifications. However, NATE has a very positive image and value assessment, even among non-NATE-certified technicians and across contractors." ●

Neal Lorenzi is a contributor to the *NATE Magazine*.

## SURVEY RESULTS



Ninety-five percent of contractors provide some type of assistance to their employees to help them with their NATE certification. That includes helping pay for training, paying for exams, help paying recertification fees, or helping in another way.

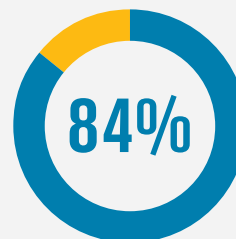


Eighty-six percent of NATE-certified technicians value NATE certification the most over any other HVACR certification.

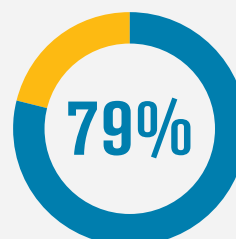


### 3 EMPLOYEES PER COMPANY

On average, 3 employees per company hold 1 NATE certification, and 3 employees per company hold multiple NATE certifications.



Eighty-four percent of NATE technicians receive some type of assistance from their employers to help them with their NATE certification.



Seventy-nine percent of contractors prefer their technicians to have NATE certification.

# Startup HVACR Contractor Knows Quality Service is Key

NATE CERTIFICATION HELPS GREEN HOME SERVICES CONTRACTOR DELIVER TOP-NOTCH SERVICE.

With NATE certifications, Green Home Services makes inroads into the HVACR business in several local communities.



George Heiman loves where he lives. He was born and raised in the Longmont, Colorado, area, which is where he also recently chose to open his HVACR business. After graduating from Silver Creek High School, Heiman attended the Leonard HVAC training center, a technical school dedicated to providing a solid foundation to all those wishing to progress in the heating and air-conditioning industry. The school provides hands-on training that includes technical details as well as procedures and routines that specialists will be confronted with daily. Heiman had his eye on the HVACR business from the start. He looked forward to being a third-generation tradesman in the field.

Heiman carries an F29 Master mechanical contractor certification, which is offered by the International Code Council (ICC), the standard for building codes in all 50 states. It is not possible to pull a building permit for any job in Colorado without this certification, which is required during the application process.

In addition, he has gone beyond just what is required and acquired additional training, which is important in setting his company and the work they do apart from other contractors. This education includes NATE certifications, which we'll explain more about below.

Heiman started his business, Green Home Services, in May of 2021 to provide the highest quality services possible to his neighbors, which include the communities of Longmont, Boulder, and Lafayette. Not only does he service residential HVACR equipment, but he handles commercial equipment including, but not limited to, furnaces, air-conditioning systems, heat pumps, and water heaters.

To maintain control of his business expenses along the way, Heiman has





Superior training, such as NATE certification, along with the right tools and expertise allows F29 Master mechanical contractor George Heiman of Green Home Services to supply high-quality technical services for consumer and commercial HVACR equipment.

decided to hire seasonal help during the busiest months of the year, often mid-summer. This approach was essential in helping him grow the business organically. All of the technicians he hires are NATE-certified, which allows him to ensure that customers get the best possible service.

When asked what Heiman believes to be the difference between Green Home Services and other HVACR contractors, he says: "I pride myself on creating personal relationships with my customers that are meaningful and built on trust. After all, customers are the most important part of any business. To facilitate this kind of relationship, I stay up to date on all the new technologies in the industry, from tools and equipment to methods and processes."

As a testament to his capabilities, one customer reports, "I have been managing property that I own personally or for family members for 50 years. I currently own and/or manage seven properties in Boulder county. As a result, I have years of experience hiring people for all manner of repair on real estate. For the last few years, I have used George Heiman for all my HVACR needs including heating, air conditioning, and, recently, with an on-demand

water heater. He does excellent professional work for a reasonable price. He shows up when he says he will, on time, and returns and repairs anything that develops a problem. He is a good source of information about how to proceed with old worn systems, whether to replace them now or give them more time. He also is a good source of information on energy efficiency and regular maintenance."

### COMPANY CREDENTIALS

As an entrepreneur and early business owner, Heiman has covered all his bases. Besides his F29 master mechanical license, he holds a Boulder County mechanical contractors' license. He maintains a \$2 million general liability insurance policy, as well. Green Home Services provides a one-year full warranty on all work performed and honors all manufacturing warranties on parts. In addition, Heiman is CPR-certified.

Training and experience are important in hiring employees for any business, and Heiman has taken that to heart. He offers all of

his employees tuition assistance for specific training at the Leonardi HVAC training center, which prepares students for NATE certification exams. As an equal opportunity employer, Green Home Services is open to hiring people of any gender or nationality as long as they are well-trained and capable.

The company schedules appointments using any method available to the general public including phone, text, or email. As a stickler for promptness, Heiman makes it a point to be on time for appointments. If a call looks as though it will take more time than originally planned, he will contact the next customers for the day with updated time slots. Because of his focus on the customer, he always sends a service tech on the call so that there is a face-to-face interaction. Quality and prompt service has gained Green Home Services strong word of mouth business in the communities in which it works.

### NATE CERTIFICATION

According to Heiman, "NATE certification has allowed me to perform small repairs prior to becoming a licensed



George Heiman believes that serving customers face-to-face allows for a better relationship where trust and integrity are important.

contractor. This provided valuable hands-on training that has increased my understanding and capabilities in the HVACR industries.”

Heiman holds four important NATE certifications: Gas Furnace Service, Gas Furnace Installation, Air Conditioning Service, and Air Conditioning Installation. He says that hiring NATE-certified technicians guarantees that they have a formal education about the mechanical codes needed to do the job. This helps to ensure that work is performed safely and in a safe environment for the technician and customer, particularly when working around hazardous situations that involve gas pipe and electrical circuits.

Although the general public may not be familiar with NATE certification, it is an essential part of the HVACR business world. Heiman explains, “All customers want trustworthy technicians to show up and do a high-quality job in a safe and timely manner. Having the right training,

which NATE provides, makes this a guarantee.” In addition, he plans to keep up with NATE certifications as a key element to improve his future capabilities and expertise.

## CHALLENGES FOR A START-UP

One of the primary challenges any start-up entails is in maintaining the cashflow necessary to hire additional part-time or full-time employees, particularly during the first few years of operation. The leap from one to two employees, for example, is difficult while remaining profitable. The many additional costs, such as increased insurance requirements, additional vehicles costs, the need for another set of specialized tools and equipment, added phone costs, and general maintenance that comes with all of these items can be overwhelming. Having a plan that is practical and reasonable is essential.

Heiman has tackled these additional costs with a plan that includes a step-by-step process. For example, new purchases are approached in a way that allows him to slowly accumulate what he needs—sometimes one item at a time. And by saving additional cash along the way, he can also purchase a

vehicle prior to initially hiring someone part-time.

Nurturing the business to keep consistent work throughout the year is also important. In the HVACR business, summer and winter are the busy seasons, which means that spring and fall workloads can slow somewhat. A good budget and smart growth plan help Heiman to save seasonally for future expenses.

Selling service and maintenance contracts for both homes and businesses helps to add income during those slow seasons. In addition, local advertising and offering promotions and discounts during slower periods also help business. But most importantly is taking care of customers by going the extra mile and handling important details. That’s what initiates word of mouth.

## LOOKING TOWARD THE FUTURE

Heiman is a savvy entrepreneur and maintains an ongoing business plan that changes as his business evolves.





At Green Home Services, the owner, George Heiman, believes that word of mouth is the best advertising. Taking care of the details of a job lets customers know that you are willing to work harder and go the extra mile to gain their business.

Through organic growth of his business, Heiman is already planning on purchasing a work truck or service van in the next year or so. Experience he's gained so far indicates that his business goes through a two-year cycle where he is able to expand, then spend time paying off the debt, so that he can control his finances comfortably. Being relatively debt-free while making smart financial decisions along the way might slow the growth of the company in the short term, but it also provides a positive catalyst for long-term success.

Heiman wants his company to grow, but being the biggest company too quickly isn't always the best way to proceed. His goal is to be the best version of Green Home Services that he can be by providing the quality of service needed in the communities he serves at a reasonable price. He plans to provide the right services while maintaining a quality of life for himself, his future family, and any employees he might hire. He believes that work and life have to balance. He puts a lot of emphasis on his own health as well as the health of his business.

When it comes to starting a new business, Heiman has learned and put into practice some key elements: great training through NATE certification, face-to-face connection with customers, and focusing on the details of every job. Starting a business is never easy, but with the right attitude and the right work ethic, Heiman understands that you can make it work. ●

Terry Persun is a contributor to the *NATE Magazine*.



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# NATE-Certified Technician Savors Victory at 2022 ServiceTitan HVAC Championship

MATTHEW “MACK” SHWERT, A HOMESERVE TECHNICIAN, TAKES HOME THE HONORS, A TROPHY, AND CASH.



Winning the 2022 ServiceTitan HVAC National Championship in Tampa, Florida, was a big surprise, says Matthew “Mack” Shwert, a NATE-certified HVACR technician and a seven-year HomeServe employee. “Winning was overwhelming because I had no idea what I was getting myself into or what was going on. Knowing it was the first ever championship...you had no idea what was going to happen. My overall experience was just awesome—it was really cool. The championships were

like the Super Bowl for the trades.”

Indeed, the 2022 ServiceTitan HVAC National Championship, part of the Elite Trades Championship Series, is like the Super Bowl for the trades. The event seeks to identify the top professional HVACR technician through a series of skills-based events. The first round of the competition, completed by more than 1,200 HVACR technicians nationwide, consisted of an online quiz from NATE, the nation’s largest nonprofit certification organization for HVACR technicians.

The competitive field was cut to 76 for round two, based on online quiz results. In round two, contestants were sent an at-home kit to test their brazing skills. Round three started the semi-finals at the Tampa Convention Center, where the field of 15 professionals competed in live timed events and were judged on their efficiency, accuracy, and overall quality of work.

In the semi-finals and then the finals, Shwert and his fellow competitors had to completely install an HVAC system, according to written specifications, over two rounds. HomeServe’s Shwert snatched victory, winning the title of 2022 ServiceTitan HVAC National Champion and a \$40,000 cash prize.

## THE NATE ADVANTAGE

Shwert, who earned his NATE certification in 2012 in air conditioning and heat pump installation and service, says being NATE-certified gave him an assist at the competition championships. “Becoming NATE-certified is really cool because you become more confident in what you are doing. In the area where I live (Marlborough, Massachusetts), unless you are working on equipment over five tons, there’s no license requirement other than the

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EPA credential. There is nothing that separates you from other technicians, other than the NATE credential, so getting NATE-certified really builds your confidence; it gives you that added boost to know what you are doing. It puts you in the next-level skills category.”

Shwert has his mind and heart set on earning more NATE HVACR credentials. “I’ve been hounding my HomeServe trainer, Randy Boutte, who is also a NATE test proctor, telling him that I want to do the NATE gas-heat certification exam.” Shwert has also told his co-workers about his desire to earn more NATE certifications. “Every time I tell guys at the shop that I want to do the NATE gas-heat training, they say, ‘Aw, Mack, you know everything. We need other techs to come in here and get the training.’ So, I am hoping to get the training this coming fall or next spring.”

The ServiceTitan champ got into the competition last summer when he and his sidekick, also a tradesman, matched wits in an online HVAC test that was timed. After surviving the first two rounds, which included the test and a brazing challenge on video, Shwert got an invite to the competition finals in Tampa.

His competitive spirit played a role, Shwert notes. “The instructions for Round 1 asked how many NATE questions you could correctly answer in a five-minute period. And at the time I saw the email, I sent it to our trainer Randy. For a couple of weeks Randy and I just battled back and forth to see who could get more questions answered correctly. In the beginning, I just wanted to do as good as or better than our firm’s trainer. Trying to compete and do better than my trainer is what really got me into the second round of the competition.”

The brazing portion of the competition was quite involved, Shwert explains. “Championship organizers



“IN THE BEGINNING, I JUST WANTED TO DO AS GOOD AS OR BETTER THAN OUR FIRM’S TRAINER. TRYING TO COMPETE AND DO BETTER THAN MY TRAINER IS WHAT REALLY GOT ME INTO THE SECOND ROUND OF THE COMPETITION.”

— Matthew “Mack” Shwert

sent us a kit for the Round 2 brazing challenge. We had to assemble this whole kit—two service valves with a loop back and forth between them both. We had to braze everything together and wear personal protective equipment. Contestants also had to do everything properly, including flowing nitrogen through the assembly deep in the pipes. They brazed it all together, pressure- and leak-tested it, and were timed. That challenge in itself was cool to do, especially because contestants did not know anything in advance or what anybody else was doing, or if they were even doing it properly or in the proper time frame.”

Shwert notes that championship competitors were completing the brazing videos at their homes in their own environment. “There was nothing other than my wife Ashley videotaping me,” he explains. Shwert adds that his wife is his biggest cheerleader and supporter.

### SKILLS ON DISPLAY

This past November, Shwert was in the hunt for championship gold. He was matching wits versus a total of 14 other HVACR tradesmen under the bright lights of the Tampa Convention Center. It was a multi-round, full-court press, featuring a live audience, judges, and network television cameras in a timed competition.

In Tampa, Shwert’s mind was focused. “You got along with everybody because the contestants were all doing the same thing. It was just like another day at work, but in a different environment. To me, I wasn’t competing against anybody else. I was just competing against myself because it is something I do every day of my life. When I was at the finals, I had a job at hand that I had to complete in a short time frame, and it was just time to go to work and do my thing.”

The day of competition flew by in a hurry. “Next thing I know, I’m hold-





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ing a trophy and a check, and I just couldn't believe it," Shwert says. He is proud of his achievements. "Winning the 2022 ServiceTitan championship is absolutely the biggest accomplishment to date in the trades for me—other than getting my plumbing and contractor's licenses and my NATE certification!"

Shwert believes that in some ways the ServiceTitan HVAC championship competition is a lot like working at his HomeServe technician job. "In my experience, homeowners often want to see what you are doing. They want to have someone to talk to about the project. They want to be there when you are working on their equipment. For me, I always feel like I am a guest in their home. The equipment I'm working on is theirs, so if they want to come down and pull up a chair and sit next to me while I am working on it, and talk with me, then that's fine. I have never had a problem with the homeowners engaging with me while I am working on their equipment."

### KEEPING UP

Shwert appreciates his employer's support. "It's kind of funny. My employer had no idea I was going to Tampa for the championship. I really had no idea what this competition was about or what I was getting myself into. Once I came back home and told everybody I had won, they were so supportive. HomeServe wants me to enter it again next year. They want to get word about the competition out there so that everybody knows about it. I couldn't be working at a better place that's more supportive of me."

Being NATE-certified helped Shwert at the ServiceTitan HVAC championship competition in Tampa. "Our HomeServe trainer Randy always has us prepare for and take refresher courses. The courses cover anything that's new that comes up in the trade. He has us in for testing to

bring us up to date with all the latest information. And every two years we are going in there and getting re-certified for our NATE credentials. He always helps us through the testing process. He always keeps us on our toes, and that helps build our confidence in the trade."

No question—the HVACR trade and HVACR technology are changing and advancing continuously, and those changes are taking place at an accelerating pace. According to Shwert, "You can never know it all." He believes that by keeping current on his NATE credentials, he will maintain and grow his trade skills.

Shwert also believes that his being NATE-certified will enhance his career in the future. "Being NATE-certified, going through the re-certification, and doing the continuing education through NATE encourages you to complete more advanced training. For me, you are forever learning in the trade. You never know it all, and every year, the HVACR trade is changing and advancing. NATE certification and re-certification encourage you to constantly learn every year, which is really good."

Those NATE credentials, Shwert explains, put HVACR technicians on a higher path. "Being NATE-certified," he says, "makes you stand out from other technicians in the trade. If I want to get a job anywhere or earn a raise or promotion, having that NATE certification is an asset." Shwert believes the NATE credential can lead to a bright future. "Having to get re-certified regularly helps encourage technicians and ensures that they are going to maintain their skills. It just gives you that extra education that you always need in the HVACR industry."

Learning will be a part of Shwert's future. He's already looking forward to upcoming steps, now that he has won the ServiceTitan HVAC championship competition. "I want to keep

learning and working, and putting in overtime. I also want to get ready for next year's competition!"

In Woburn, a Boston suburb, Shwert is part of HomeServe's 60-member team that serves eastern Massachusetts and part of Rhode Island. Nationwide, HomeServe employs nearly 1,000 people working in the skilled trades, including HVACR technicians, plumbers, and electricians. Additionally, the company partners with over 2,400 contractors in the U.S. and Canada to serve more than 4.8 million customers.

In his seven years at HomeServe, Shwert has performed nearly 6,000 HVACR repair and installation jobs. He consistently receives five-star reviews from the customers he services.

"We're all incredibly proud of Mack's accomplishment. It's a well-deserved win for him, and a testament to the skills he's perfected throughout his career," comments Mark Crook, senior vice president, HomeServe Energy Services. "Mack, like all the people working in skilled trades roles with us at HomeServe, is key to our company's value of putting our customers at the heart of everything we do. We're glad to have him on our team."

For prospective competitors in the 2023 ServiceTitan HVAC championship, Shwert urges them to maintain their focus. "The advice I would have for contestants in the 2023 event would be to not worry about anyone else. You're there because you're the best. Keep your nose to the grindstone and go to work!"

He urges 2023 contestants to keep their composure in order to stay competitive. "You've got to just believe in yourself and don't second-guess yourself on what you are doing in the competition. If you mess up, don't let it get to you. Just move along because you are chasing the clock." ●

---

Michael Keating is a contributor to the *NATE Magazine*.





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# Product News

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## VARIABLE FREQUENCY DRIVE

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SmartD, [www.smartd.tech/products/](http://www.smartd.tech/products/)

## LOAD MODELING SOFTWARE

Built for mechanical engineers, the loadmodeling.tool quickly and automatically establishes peak cooling and heating loads to design and right-size the mechanical system using the EnergyPlus engine. This web-based tool supports cove.tool's goal of providing the solutions needed for the AEC industry to unlock productivity and solve the climate crisis.



The loadmodeling.tool is web-based, enabling users to access the tool—and results—anywhere, which means large files do not have to be transferred or shared manually. Another important function of the tool is that multiple engineers can work simultaneously on the platform. Multiple people can log into the project and work on various tasks at the same time, increasing team efficiency. The loadmodeling.tool also fits current workflows and gives engineers the answers they need in the way they work. cove.tool, [www.cove.tools/loadmodeling-tool-hvac-design#Features](https://www.cove.tools/loadmodeling-tool-hvac-design#Features)



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## Word Search

(continued from page 4)

1. Traditional	N	Z	Q	E	O	L	H	C	E	S	N	P	Y	O	T
2. Anniversary	G	P	N	F	N	A	S	Q	O	I	L	A	K	R	E
3. Heat	C	C	S	F	A	N	V	E	C	O	W	R	A	H	Y
4. Coolant	R	F	O	I	I	O	M	T	R	H	L	I	U	R	I
5. Efficiency	Z	V	V	C	C	I	U	F	T	V	N	A	A	X	D
6. Training	I	J	E	I	I	T	Q	A	G	I	I	S	N	D	V
7. Survey	Z	O	N	E	N	I	P	T	N	Y	R	C	W	T	R
8. Technician	Q	U	T	N	H	D	X	G	H	E	U	J	E	C	G
9. Pathway	S	B	I	C	C	A	H	R	V	N	P	K	F	B	V
10. Recertify	U	J	L	Y	E	R	P	I	Y	E	V	R	U	S	T
11. Service	H	E	A	T	T	T	N	T	Q	T	I	V	O	W	S
12. Ventilation	U	Z	T	E	K	N	R	E	C	E	R	T	I	F	Y
	M	G	I	H	A	V	L	X	I	S	X	S	E	A	Z
	Y	K	O	D	X	U	B	L	J	T	G	D	D	L	Z
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