

# NATE

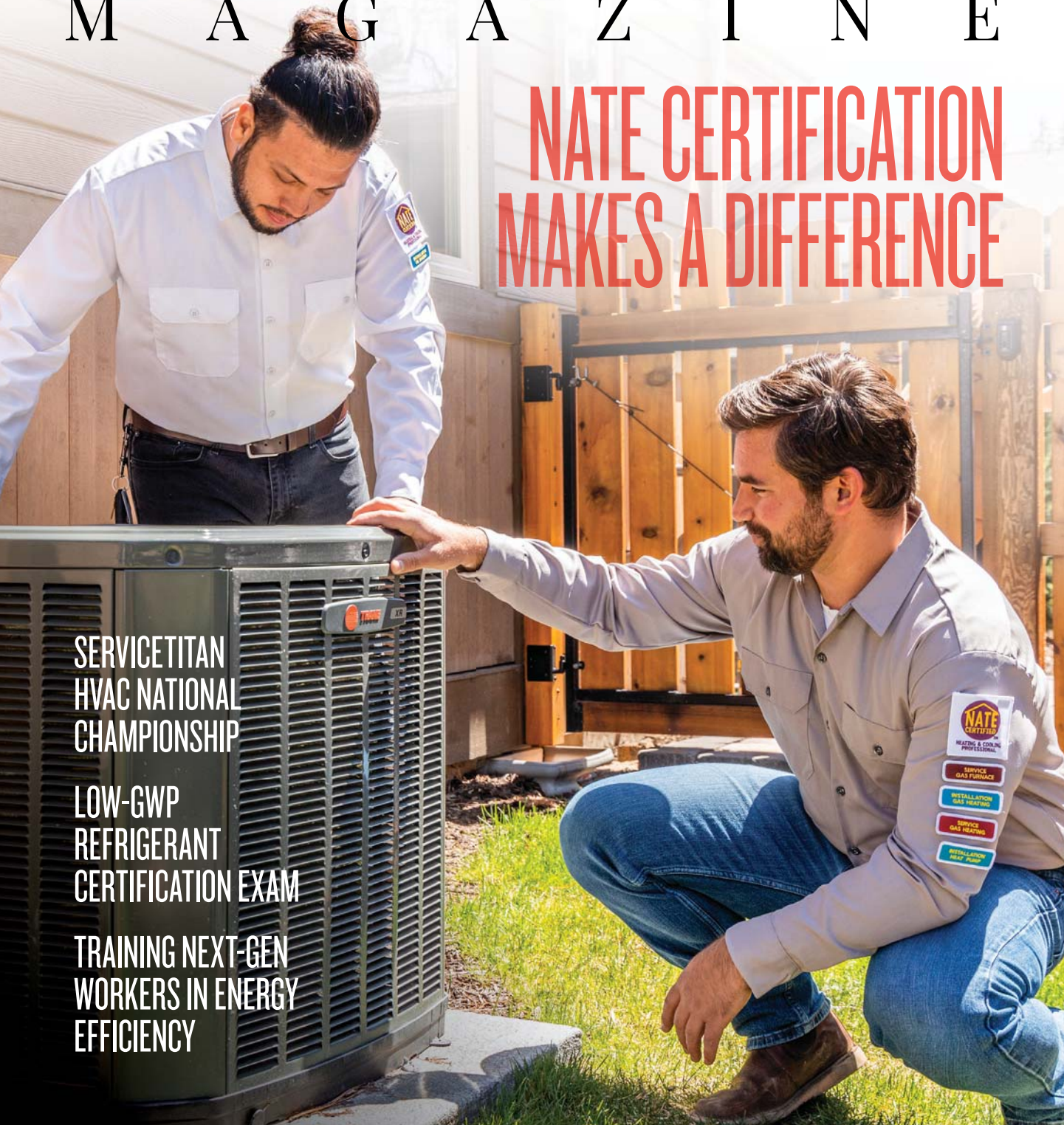
M A G A Z I N E

**NATE CERTIFICATION  
MAKES A DIFFERENCE**

SERVICETITAN  
HVAC NATIONAL  
CHAMPIONSHIP

LOW-GWP  
REFRIGERANT  
CERTIFICATION EXAM

TRAINING NEXT-GEN  
WORKERS IN ENERGY  
EFFICIENCY



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# NATE Stays Ahead of the Curve

THE HVACR INDUSTRY IS CONSTANTLY EVOLVING, AS IS NATE. OUR RESPONSIBILITY IS TO PREPARE TECHNICIANS TO SOLVE TOMORROW'S CHALLENGES.



Our organization was founded 25 years ago after a group of industry leaders came together to discuss their concerns with the overall quality of field service and installation of HVACR equipment. Their conversations focused on technicians because of their importance in our industry. As a result of those meetings, NATE was founded in February 1997, and we began administering the first NATE exams in November 1997. Today, we have certified more than 300,000 technicians.

This year we are proud to celebrate our 25th anniversary, and our commitment to supporting HVACR technicians remains the focus of our organization. Our goal is to remain relevant, accessible, and convenient for those in HVACR. We are all about making sure that technicians are highly confident and highly competent, because as we all know, they are really the face of the contractor, and by extension, the HVACR industry.

It has been an incredibly busy year, and we wanted to focus our final magazine issue on the incredible changes and growth our organization has experienced since 1997. In this issue, you can find interviews with HVACR technicians that have been certified for over 10 years with NATE. In our article *NATE Makes a Difference*, we talk with them about how NATE certification has helped shape their careers and their perspective on how NATE has changed for technicians over the past two-and-a-half decades.

It can be hard to name all of the ways NATE has changed and grown over the years. In just the past three years, we have introduced several initiatives to better support technicians as they learn and grow in the field. We have introduced Live Online Proctoring to give technicians the flexibility to take their exams from their home or office at a time that fits their schedule. With the introduction of the Certified HVAC Professional (CHP-5) certification, technicians can now choose from two different pathways to NATE certification. Additionally, we now have more resources for technicians that are preparing for their exams, with our study guides and our new online training platform, NATE Training Academy.

We will soon launch a new online course on NATE Training Academy to help technicians prepare for our new low-GWP refrigerant certification exam. The new exam is designed to ensure that HVACR technicians have the necessary skills and job knowledge to handle refrigerants of all types, with a strong emphasis on the safe handling and use of these new refrigerants. In this issue, we spoke with NATE Technical Committee members that helped develop the certification exam, as well as technicians that recently earned the certification. You can read this feature article (page 20) to learn more about why they took the exam and how they are using these new refrigerants in their day-to-day work.

When we look to the future, it's all about being accessible to the industry—and to the contractors and technicians we serve. The HVACR industry is constantly evolving, and it is our responsibility to stay ahead of the curve to prepare our technicians to solve tomorrow's challenges. ●



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### 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.



**R32**

Up to 27.4 SEER  
Up to 13.8 HSPF  
Up to 16.3 EER



# You Asked, We Answered

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

Have a question for NATE? Please email us at [asknate@natex.org!](mailto:asknate@natex.org)

## I'D LIKE TO PROMOTE NATE ON MY COMPANY'S WEBSITE. WHERE CAN I FIND A COPY OF NATE'S LOGO?

The NATE logo is a visual representation of our brand, and as a certification organization, proper usage is key to increasing awareness for what we do: Certifying the finest in HVACR. NATE encourages contractors that employ NATE-certified technicians to use the NATE logo on their websites, social media, and other promotional materials. We have Contractor Partner logos available in .eps (print), .png (web), and .jpg (web) formats. You can find a logo usage request form on our website, on our Contractors – Get Advertising Resources page.

If you have any questions about using the NATE logo, please contact the NATE marketing manager, Daisy Weill, at [dweill@natex.org](mailto:dweill@natex.org), or call us at 877-420-NATE.

## MY NATE CERTIFICATION IS ABOUT TO EXPIRE, AND I HAVEN'T COMPLETED 16 HOURS OF CONTINUING EDUCATION. WHAT SHOULD I DO?

If you are coming up on your expiration date and have not fulfilled the 16 hours of training, you have a grace period of 120 days (4 months) before the certification officially lapses. During this time, you are expected to submit the remaining credit hours or re-take your Specialty exam. If a technician fails to recertify by the end of the grace period, the technician will have to re-take both CORE and Specialty exams—or all five Certified HVAC Professional (CHP-5) exams—to become certified again. You are not considered NATE-certified if all your certifications are in their grace periods.

## WHAT IS THE BEST WAY TO PREPARE FOR MY NATE EXAM?

Achieving NATE certification is no small feat, but the rewards are great. NATE offers several resources to help technicians prepare for their certification exams:

- **Review your exam Knowledge Areas of Technician Expertise (KATEs).** For training and testing information, first review NATE's KATEs. Each KATE contains a detailed list of references. The KATEs enable you to cross-reference information with the index of any HVACR reference book to locate the correct information to study. No question will be on a NATE-developed test unless it is referenced in a KATE. All KATEs are available on NATE's website on the NATE Exams – Exams Offered page.
- **Attend a NATE-Recognized Class.** While not hosted by NATE, these classes meet the standards of our KATE materials and may serve as good educational supplements. You may also ask your NATE testing provider whether any preparatory training is offered.
- **Read NATE Study Guides.** NATE offers study guides to help technicians prepare for their NATE exam. All guides are concise, graphics-heavy, and have practice questions at the end of each chapter. All guides are available for purchase in the NATE Online Store.
- **Subscribe to NATE Training Academy.** NATE has partnered with Interplay Learning to create NATE Training Academy, a comprehensive online training program. The on-demand courses allow technicians to prepare for the CHP-5 certification exams at their own pace and from the comfort of home.

Have more questions about preparing for your NATE exam? Contact us at [askNATE@natex.org](mailto:askNATE@natex.org).



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reinvent categories.  
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trends, innovations  
and response to  
customers, all while  
helping us navigate  
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# NATE News



## NATE PARTNERS WITH PNNL TO INCORPORATE DOE EDUCATIONAL GOALS IN NATE CERTIFICATION EXAM

North American Technician Excellence (NATE) is proud to partner with the Pacific Northwest National Laboratory (PNNL) to update the Heat Pump specialty NATE certification to include Department of Energy (DOE) industrial decarbonization goals. NATE worked with PNNL to update the Heat Pump specialty certification to incorporate the DOE’s decarbonization standards into the job task analysis for the certification. The updated job task analysis now includes DOE’s new guidance on smart diagnostic tools, decarbonization, and coal climate heat pumps.

NATE is now working with its Technical Committee to update the Heat Pump specialty exam questions to match the updated job task analysis. The NATE Technical Committee is made up of experts from across the HVACR industry and guides NATE’s exam updates and new exam development. NATE expects to release the updated exam in early 2023.

“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. Due to rapidly changing technologies in the HVACR industry, we must continually evaluate our certification standards to remain at the top of the field,” explains NATE COO John Lanier. “The Pacific Northwest National Laboratory is a leader in sustainable energy technology and innovation. By partnering with PNNL to incorporate the Department of Energy’s decarbonization goals, NATE is ensuring that we are staying ahead of the curve on important environmental changes in our industry.”

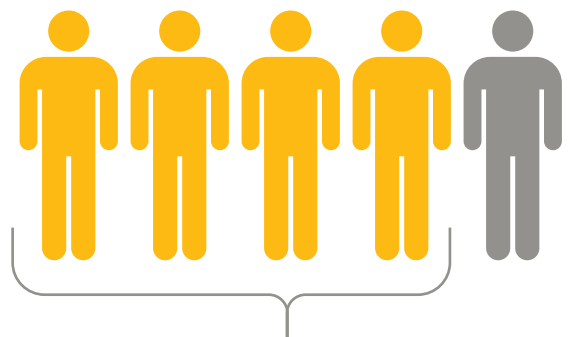
## NATE WORKS WITH OPINION RESEARCH COMPANY TO CONDUCT TECHNICIAN AND CONTRACTOR SURVEY

This past year, NATE worked with Decision Analyst, an independent opinion research company to conduct an anonymous survey of technicians and contractors to better understand technician certification needs. The survey is part of NATE’s ongoing efforts to understand how NATE training and testing aligns with the career development path of technicians today.

Among the contractors and technicians surveyed, NATE certification was valued highest among HVACR certifications (59% among contractors and 86% among technicians), and the survey 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 noncertified technicians.

The survey also looked at the impact of technician training and certification on employee retention. The survey showed that four out of five NATE-certified technicians have received some form of assistance from their employers—and 84% of the companies surveyed that employed NATE-certified technicians provided some sort of assistance to their technicians during the certification process.

NATE plans to use the survey to inform its work over the coming months and help contractors provide better training and resources for their technicians. ●



4 OUT OF 5

CONTRACTORS PREFER THEIR TECHNICIANS TO BE NATE-CERTIFIED.

# BE READY FOR WHATEVER COMES NEXT



## THE NEW UPSe



## THE FULLY DIGITAL ALPHA

DIGITAL  
**NEXT**

### ARE YOU READY FOR THE NEXT STEP IN CIRCULATOR PUMPS?

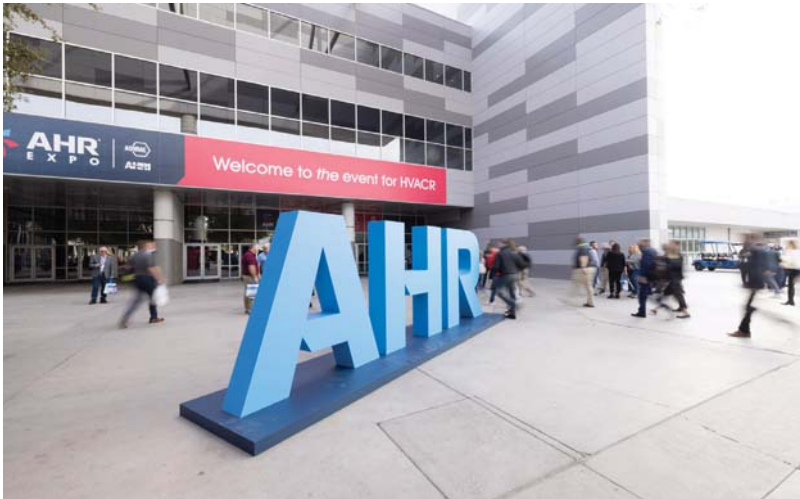
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**GRUNDFOS** 

# Industry News



## PLAN TO ATTEND THE 2023 AHR EXPO

Since 1930, the AHR Expo has served as a forum for the HVACR industry, bringing together a range of manufacturers with engineers, contractors, facility operators, architects, educators, and other professionals to explore the latest trends and applications in the industry. In 2023, the AHR Show will run from Feb. 6-8 at the Georgia World Congress Center in Atlanta and will be held concurrently with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Winter Conference, which begins on Feb. 4.

The AHR Expo includes over 1,600 exhibitors, 250 industry sessions, 145 new product and technology presentations, and panel discussions. Mark your calendar for Tuesday, Feb. 7th, for a panel discussion on the state of the industry. Leaders from ASHRAE; the Air Conditioning Heating Refrigeration Institute (AHRI); Heating, Air Conditioning, Refrigeration Distributors (HARDI); and National Comfort Institute (NCI) will examine current challenges, opportunities, and forecasts for the year ahead in HVACR.

On Monday, Feb. 6th, NATE COO John Lanier will give a presentation titled "Quantifying the Importance of Technician Training and Certification." NATE worked with an independent research group to survey technicians and contractors about HVACR certification and continuing education in the workplace. Lanier will recap major trends in employer-provided training and review survey results, including how employer-provided training affects retention, job satisfaction, and customer growth. During the Expo, be sure to stop by the NATE Booth, C5764, to say hello.

Last year's AHR Expo in Las Vegas drew more than 30,000 attendees. Organizers expect an even larger crowd in 2023. For more information on the event and to register, visit [www.ahrexpo.com](http://www.ahrexpo.com).

## TEN COMPANIES CAPTURE THE COVETED INNOVATION AWARDS

The AHR Expo recently announced the winners of the 2023 AHR Expo Innovation Awards. Organizers report that winners are chosen in 10 industry categories and represent the most innovative products and technologies set to hit the market.

A panel of third-party judges comprised of distinguished ASHRAE members review new product solutions, improvements, and technologies. Entrants are evaluated on overall innovative design, creativity of the product or service offered, product or technology real-world application, and overall potential market impact.

This year's winning products, listed in the categories below, will be on display at the show in February 2023.

- **Building Automation:** Cielo WiGle Inc./Cielo Breez Max Smart Thermostat;
- **Cooling:** Chemours/Opteon XL41 Refrigerant;
- **Heating:** Copeland Compressors and Condensing Units/Copeland ZPSK7 Scroll Compressor;
- **Indoor Air Quality:** Belimo Americas/Room Sensor;
- **Plumbing:** Caleffi Hydronic Solutions/Caleffi 536 Series PresCal HP Piston-Type Pressure Reducing Valve;
- **Refrigeration:** Retail Solutions/Copeland ZFW Variable Speed Scroll Solution for Low-Temperature Refrigeration Applications;
- **Software:** cove.tool/loadmodeling.tool;
- **Sustainable Solutions:** Taco Comfort Solutions/System M Outdoor Heat Pump;
- **Tools & Instruments:** NAVAC Inc./Breakfree Power Flaring Tool; and
- **Ventilation:** SmartD Technologies/SmartD Clean Power Variable Frequency Drive.

# Forward Thinking

When you and your customer select LG for their HVAC installation, several feelings may arise from the job. They feel the comfort and convenience that LG solutions deliver, while you feel satisfied knowing they have an advanced system that provides the reliability, efficiency, and flexibility their project requires. It's forward thinking at its finest.

## Ahead of the Expected with LG HVAC Solutions



# NATE Certification Makes a Difference



**WHATEVER CAREER STAGE YOU ARE IN, YOU SHOULD ALWAYS BE LEARNING ABOUT YOUR CRAFT. THESE NATE-CERTIFIED TECHNICIANS FOUND CONFIDENCE TO EXCEL IN THEIR LONG HVACR CAREERS.**

**N**ATE's commitment to educating and certifying HVACR tradespeople has encompassed its mission since its inception. As the organization celebrates its silver anniversary, we share with you two stories of HVACR professionals who embraced NATE certification early on in their careers and discovered how the NATE patch helped build their confidence in their craft.

## **JOHN KEY, AA-AIRCO, KNOXVILLE, TENNESSEE**

For John Key, his vow to be the best service technician began with a service repair gone bad.

"I was sent out to change a compressor on a Carrier unit," he recalls. "Since it would be the third compressor in the machine, Carrier was sending out a service rep to inspect my work. I was young and full of it; I knew everything

“THE FIRST NATE TEST I TOOK, IT WAS LIKE AN EIGHT-HOUR ORDEAL. IT WAS A REALLY COMPREHENSIVE TEST. IT ASKED QUESTIONS ON EVERYTHING. I DIDN'T PASS IT, SO I STARTED STUDYING SOME MORE. THEN NATE BROKE THE TEST UP INTO THE CORE EXAM, HEAT PUMP, GAS, OIL, AIR BALANCING, ETC. I WENT BACK, TOOK THE CORE TEST AND PASSED IT, THEN THE HEAT PUMP TEST AND PASSED IT. I KNEW THAT NATE COULD HELP ME BE THE BEST TECHNICIAN I COULD BE.”

– John Key, AA-Airco



there was to know. I changed the compressor: I took it apart, cleaned the blower wheel, cleaned the coils, checked the duct work. Everything was hunky-dory, I thought.”

When the Carrier rep arrived, he took the top off the unit. “Carriers had a double coil in them, looks like a sandwich,” Key notes. “The rep split the coil open, and it was completely impacted. The outside looked good, and the inside looked good, but right in the middle, it was full of stuff.

“I realized then that I didn’t know it all — and I never wanted to be caught like that again on the job. I decided right there to make myself the best service technician I could.”

Key was no novice in the HVACR industry: his grandfather owned a heating and plumbing business, two of his uncles owned a heating and air conditioning business, and his father was an electrician with a commercial refrigeration business.

“I’ve been exposed to it all my life,” he explains. “I started when I was about 14—working summers, weekends, and evenings with one or the other, mostly my father and my two uncles.”

Key went to college, earned a degree in a wildlife biology and natural resources management, but never used it. He enjoyed the heating and air business: “I liked talking to people. I liked being my own boss, in my own truck, and just being on my own, working.”

He and his family moved to Knoxville in 1995. Key took an HVACR tech job with JA Tiller. It was eventually bought out by AA-Airco, where Key continues working today.

It was 1986 when Key was sent to change that Carrier compressor. NATE hadn’t started yet, so he would go to any equipment classes he could find, sitting in the front row.

“Then they came up with the idea for NATE,” he says. “The first NATE test I took, it was like an eight-hour ordeal.

It was a really comprehensive test. It asked questions on everything. I didn’t pass it, so I started studying some more. Then NATE broke the test up into the Core exam, heat pump, gas, oil, air balancing, etc. I went back, took the Core test and passed it, then the heat pump test and passed it. I knew that NATE could help me be the best technician I could be.”

Key notes that other technicians respect him because of his NATE certification, and employers certainly do. “Anyone who is NATE-certified could go anywhere in this United States and get a job, no problem,” he says. “Just walk right in and say, ‘I’m NATE-certified. Here’s my card.’ They’d hire you because that card means you are a skilled technician.”

Although Key is semi-retired, he works one or two days a week on special projects and provides tech support for two HVACR businesses. He also teaches classes at AA-Airco “to get people learning more. One of the guys has bought the books on the NATE test. He’s studying and is all excited about it.”

Key explains: “I don’t think I would be doing this if I wasn’t NATE-certified because now, I’m the go-to guy. The techs call me about problems in the field, and most of the time I know the answer right away. If not, I’ll look it up on my iPad or, if I need to do more research, I’ll call them back with the answer they need.”

Key notes that the biggest boost NATE gave him is confidence, allowing him to excel in his 58-year career.

“With those certifications, I became more confident in knowing what I was doing,” he explains. “And I understand that it’s OK if you don’t know it all and need to call tech support to help you. If I’m in a jam, I don’t sit there for hours, trying to figure out something. There’s a lot to learn in this business. That’s why NATE is so great because you’re always learning something. You’re always striving to be a little bit better technician than you are.”

## JIM PIVONKA, CONTEMPORARY AIR CONTROL, COSTA MESA, CALIFORNIA

When Jim Pivonka took his first NATE exam in 2005, his thirst for learning expanded so much so that he now has 16 NATE certifications and many recertifications — including the CHP-5 exams in 2021.

“My first exam was a two-day session,” he recalls. “The first day, you got prepped for Core and one specialty; I went for heat pump air conditioning service. The next day was the testing: seven hours, 50 Core questions, and 100 specialty questions. At the time, it was a paper test, and you didn’t know how well you did for two weeks. I passed and said, ‘Wow, that was cool; I’m going to try some more.’ Then I went in for the gas heating and air distribution tests.”

Pivonka got his start in the construction industry with his dad, who was a builder. “My first actual job was called plumb and line,” he says. “I went around and put the bolts and the washers on the nuts that come up through the concrete for the wood framing.”

In junior college, Pivonka was interested in mechanical drawing and architecture, and took all the construction classes. “At the end of it, I finally figured out I didn’t want to be sitting in a room underneath fluorescent light bulbs. I wanted to be out in the field,” he explains. “Framing was my first love, so I took a job with one of my dad’s buddies.”

The framing business slowed down during the early 1970s. His dad encouraged him to go work for an air-conditioning contracting company.



“I didn’t want to work with fiberglass, I didn’t want to go into the installation angle,” Pivonka explains. “Dad said if I wanted to work, I had a job there. In 1974, I was ushered into the air-conditioning and heating business. I worked on and off for the next five years in framing and air conditioning. When one would get slow, I’d go to the other. That was my initial introduction; my dad dared me to go to work for an air conditioning guy.”

“After a while,” he continues, “I got to liking it, and it was steady. And before I knew it, I ended up with 25 years at the heating and air-conditioning company.”

In the early 1990s, technicians were required by the EPA to certify for refrigerant handling. “It was a 100-question test to get your 1, 2, 3 and your universal certification,” Pivonka recalls. “And that’s what lit the flame for me. When my first boss retired in 1999, he said I should get NATE certification. NATE was only a few years old at that time, but he was familiar with it.”

From 2000 to 2005, Pivonka went to any classes that HVACR equipment manufacturers or supply houses offered.

He was working full-time, so these were after-hours classes.

“After the first three or four exams, I started studying what I could and fitting it in when I could,” Pivonka says. “And failure was OK; it didn’t bother me. I got more involved in studying more to find out where I went wrong. If you failed a test, NATE explained in your return what you were a little short on and what you were good in. And that was always very helpful.”

“AFTER THE FIRST THREE OR FOUR EXAMS, I STARTED STUDYING WHAT I COULD AND FITTING IT IN WHEN I COULD. AND FAILURE WAS OK; IT DIDN’T BOTHER ME. I GOT MORE INVOLVED IN STUDYING MORE TO FIND OUT WHERE I WENT WRONG. IF YOU FAILED A TEST, NATE EXPLAINED IN YOUR RETURN WHAT YOU WERE A LITTLE SHORT ON AND WHAT YOU WERE GOOD IN. AND THAT WAS ALWAYS VERY HELPFUL.”



— Jim Pivonka, Contemporary Air Control

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In 2015, Pivonka wanted to get his California contractor's license, a "natural step" in his career. "I could be more valuable to my boss if I had a contractor's license," he notes, "and if I wanted, I could go out on my own. I did work for myself for a while, but I like being part of a company. If it is a small company, it's even more fun."

Pivonka is semi-retired now, but he still works on his NATE certifications and recertifications.

"I want to help people in this industry with their certifications," he explains. "I helped one of my compatriots in the field get his EPA 608 for refrigerant handling. He wanted to proceed in his career and become an engineer on an Air Force base, a civilian employee. I went to his house and coached him on air conditioning so he could pass the exam."

Pivonka adds: "One reason why I kept my air conditioning attitude for jobs was I saw that it was a job that you could do longer than framing, which was very hard on your body. In heating and air, I see the

improvements in the way we not only install but also the quality of it. It is very attractive to me.

"I've taken more classes on electrical," he says, "than I can shake a stick at. I am always looking at more for the service angle, and they're always putting more technology into this equipment—the testing, tracking, and finding out where it's going wrong. And I love the technical angle. NATE gave me more confidence; I wanted to be a value to my boss."

### CHANGE IS GOOD

Several years ago, NATE changed its recertification rules from needing 60 hours of continuing education hours (CEHs) every five years to 16 hours every two years. Additionally, NATE expanded the type of HVACR topics that courses could cover to qualify for continuing education hours.

"This change was made to make it easier for technicians to stay on top of their continuing education hours," explains Tony Spagnoli, NATE's director of testing and education. "The feedback was positive. We saw a switch from 80% of technicians renewing by retesting to 85% to 90% using CEHs to renew. Since we changed the recertification process, technicians are more engaged because it is easier to track 16 hours over two years rather than 60 over five."

Pivonka agrees: "NATE has changed for the better, and I think that recertification every two years is for the better. I know the young guys are having a hard time putting those hours in, but I always found that 16 hours was easy to do. The 60 hours every five years, you really had to concentrate. You can retake the test if you don't want to go through the hours."

However, Key prefers the old way: "Every two years, 16 hours, is OK. But when COVID-19 hit, it changed the rules on everything. I've gotten a lot of hours done by working on my iPad, but I really enjoyed going to those classes and seeing all the other guys. I like the study guides, though; they really help."

Pivonka and Key wish more of the younger technicians they know would focus on NATE education and certification. They believe that employers should champion NATE certification not only with their employees but also with customers. Employing skilled, certified HVACR technicians means customers get quality work done correctly the first time—even if the tech has to call a support person for help. ●

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

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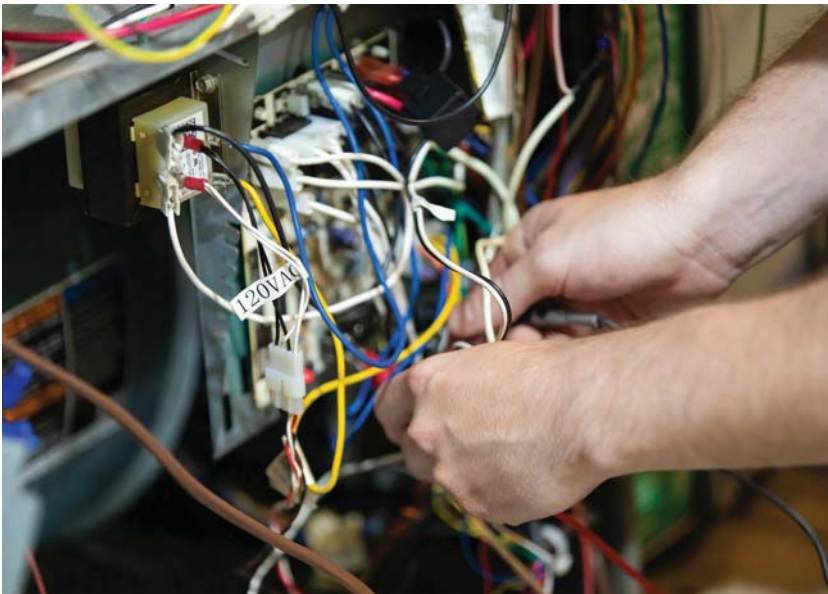
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# ServiceTitan HVAC National Championship—a Winning Event

THE NATE CERTIFICATION PROGRAM PLAYS A PROMINENT ROLE IN CHOOSING THE NEXT HVACR CHAMP.



The HVACR industry and the NATE certification program were highlighted during the final round of the ServiceTitan HVAC National Championship, which took place Nov. 2 at the Tampa, Florida, Convention Center. The event, which will be broadcast in December, showcased the skills of participating HVACR technicians. The championship is part of the IDEAL Elite Trades Championship Series.

The championship competition included two qualifying rounds before 30 finalists (15 professionals and 15 apprentices) were selected for the all-

expense-paid trip to compete in the National Championship semi-finals and finals. In addition to earning champion recognition, finalists competed for cash and prizes totaling over \$115,000.

The competition's Digital Online Qualifier round, which ran through July 31, was open to any HVACR apprentices with less than three years of experience or any EPA-certified, licensed technicians with more than three years of experience.

The qualifying round of the competition featured a five-minute multiple-choice test. Those who passed advanced to a practical skill set round,

which ran from Aug. 1 to Sept. 25. The top 15 apprentices and the top 15 professionals were invited to compete live in the semi-finals at the Tampa Convention Center. All qualifying round winners who advanced to the semi-finals received a custom VIP prize package from ServiceTitan HVAC National Championship sponsors and an all-expenses-paid trip to the championship site.

## PICTURE PERFECT

During the 2022 championship rounds, more than 1,000 apprentice and professional tests were taken. NATE provided the questions for the digital quiz qualifier as well as assisted the competition in the second qualifying round and the live semi-finals. Two NATE Technical Committee members helped judge the practical skill set round, where technicians filmed themselves dry fitting then brazing copper tubing to a Trane Service Valve Assembly. Additionally, NATE met with the contestants at the live competition and set up a booth to speak with attendees about NATE certification.

Chris Hunter, ServiceTitan director of customer relations, explains, "I believe this brings awareness to NATE and also will encourage those who want to compete next year to earn their NATE certification so they can do even better on the qualifiers."

“WHEN I STARTED MY BUSINESS, I WAS A NATE-CERTIFIED TECHNICIAN. I WAS EXTREMELY PROUD OF THAT AND TOOK GREAT PRIDE IN MY WORK. I ENCOURAGED EACH TECHNICIAN I HIRED TO EARN IT AS WELL.”

— Chris Hunter, ServiceTitan director of customer relations



Hunter is certain that earning NATE credentials is crucial to career success for HVACR technicians. “When I started my business,” he says, “I was a NATE-certified technician. I was extremely proud of that and took great pride in my work. I encouraged each technician I hired to earn it as well. Our firm even paid more per hour once they achieved it. It was a way we could showcase to our customers and peers that we were more than qualified to do the jobs and certified by a third party. It also was a way to show future employees that we believed in quality workmanship and personal growth.”

The ServiceTitan HVAC National Championship pinpoints several key HVACR technician skills to cover in the competition, say two executives at Trane Technologies, one of the event’s sponsors. In a joint statement, John Fama, field service team lead, and Stephen Smith, field service representative, explain: “The primary focus of the championship event is to test the skills of installation technicians. Technicians who have pride in their work tend to be clean and efficient. They want their installations to be perfect from the inside out. The HVACR system must be impeccably clean. The install tech must know and apply proper procedures to deliver a clean system to the homeowner.”

Fama and Smith point out that cleanliness in the installation process delivers system reliability, and most

premature compressor failures are directly related to poor installation procedures. They explain: “Most quality technicians also deliver a visually appealing installation, where the unit is perfectly level, the refrigerant line and electrical connections are clean and not sloppy. They want to provide an installation that someone would photograph and post on social media as Picture Perfect.”

### SUSTAINABLE CAREER OPPORTUNITIES

NATE certification is important for today’s generation of HVACR technicians, say Trane’s Fama and Smith. “NATE is the most recognized national certification program for the HVACR industry. At Trane, we have more than 30 online courses, alongside live courses, providing more than 60 hours of CEUs. At our firm, many technicians with NATE certifications wear the NATE badges proudly on their sleeves. It displays a level of knowledge and is a badge well-earned.”



What’s more, the ServiceTitan HVAC National Championship may encourage more HVACR technicians to earn their NATE certifications or other industry certifications, believes MaryBeth Kime, strategic partnership leader, Trane Technologies. “On the whole,” she says, “we believe that the introduction of the HVACR competition into this event series will trigger additional interest in HVACR careers. When entering the industry, we stress the importance of techs having those additional certifications such as NATE’s to ensure they are prepared to handle the latest technology and requirements of the field.”

Technology is in a state of transition, believe Fama and Smith. “HVACR systems are becoming more efficient and more complex. The ‘typical field’ procedures from many years ago no longer apply today. Most systems in the past were fairly similar to one another, and if technicians understood basic HVACR, they could work on 90 percent of the systems out there. This is changing, especially with inverter technology, where products can vary dramatically from one manufacturer to another. Continued education is needed; unfortunately, it’s not always received.”

Could the ServiceTitan HVAC National Championship help to encourage more people to consider making a career move to become HVACR technicians? Kime believes the answer is yes. “This competition,” she explains, “will show people who may

“ON THE WHOLE, WE BELIEVE THAT THE INTRODUCTION OF THE HVACR COMPETITION INTO THIS EVENT SERIES WILL TRIGGER ADDITIONAL INTEREST IN HVACR CAREERS.”

— MaryBeth Kime, strategic partnership leader, Trane Technologies

“IT’S GETTING PEOPLE TO REALLY SEE WHAT’S INVOLVED WITH THESE MYSTERIOUS TRADES. PEOPLE GET TO SEE WHAT HAPPENS ON A DAILY BASIS THROUGH THIS HVACR COMPETITION.”

— Scott Caron, technical advisor, Intersport marketing



be interested in potentially pursuing a career in HVACR just how dynamic and interesting it can be. The competition also may pique the interest of folks who never considered a career in the trades.”

Brad Trevillian, vice president of sales of company-owned operations for the Residential HVACR & Supply business of Trane Technologies, concurs. “The shortage of HVACR technicians,” he says, “is one of the greatest challenges facing our industry, impacting our dealers and the homeowners they’re serving. That’s why Trane and American Standard are proud to be supporting sponsors for this event, along with ServiceTitan, the title sponsor.”

Don Gillis, senior technical trainer, The Chemours Company, believes the ServiceTitan HVAC National Championship may help folks look at the HVACR technician profession in a new light. “I believe it can. Competitions such as those presented by SkillsUSA and ServiceTitan draw attention to the industry and help showcase the types of sustainable career opportunities that exist in HVACR.”

Gillis also believes the championship event may drive more HVACR technicians to earn their NATE certifi-

cations or other industry credentials. “I believe it can help. But ultimately, we need to motivate more of the industry leaders to encourage certifications by elevating the importance of NATE and others.”

### THROUGH THE EYES OF PROFESSIONALS

Scott Caron believes the championship event could be the ultimate recruiting tool. The Intersport marketing agency, one of the event organizers, brought in Caron as a technical advisor to help build out the competition for the HVACR championship. He also will be doing on-air color commentary for the competition when it airs as three television shows in December.

Caron says the entire premise of the IDEAL Elite Trades Championship Series is to showcase the tradespeople and what they do every day. “The purpose” he says, “is to quite simply bring attention to all of the trades that are in dire need of attracting workers—since all of the trades are suffering worker shortages right now.”

He believes the competition will focus the spotlight on the profession. “It is bringing awareness first,” he explains, “and then it’s getting people to really see what’s involved with

these mysterious trades, especially the HVACR world. People get to see what happens on a daily basis through this HVACR competition. They get to see real people perform real tasks and show how much fun and interesting this trade can be.”

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Other sponsors supporting the ServiceTitan National HVAC Championship include: Trane, American Standard, 7-Eleven, Duluth Trading, and Little Giant Ladder Systems.

What will we see in next year’s ServiceTitan HVAC National Championship? Increased participation among HVACR professionals? ServiceTitan’s Hunter believes we will see more contractors, manufacturers, dealers, and distributors encouraging technicians to enter the event in 2023.

He concludes, “Can you imagine the marketing power and bragging rights if you have the national champion on your team? That is a PR dream, plus it will encourage other technicians to improve their skills in hopes of qualifying as well.” ●

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



### COMPETITION RESULTS

As we go to press, results of the competition are not yet available. To learn who achieved victory in the competition, check out the NATE website at <https://natex.org/>. And on Dec. 16th, look for the competition’s broadcast on CBS Sports at 8 p.m. EST.



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# Low-GWP Refrigerant Certification Exam

NATE INITIATIVE HELPS PREPARE TECHNICIANS FOR A WORLD OF NEW, GREEN REFRIGERANTS.



Photo: David Spates | Dreamstime.com

**N**A TE has introduced a Low-GWP Refrigerant Certification Exam, which is designed to validate a technician's knowledge of the low-Global Warming Potential (GWP) refrigerants that are becoming common in the HVACR industry due to new state and federal regulations. The exam was created to ensure that HVACR engineers and technicians have the necessary skills and job knowledge to handle refrigerants of all types, with a strong emphasis on the safe handling and use of these new refrigerants.

The Low-GWP Refrigerant Certification Exam is an important educational initiative for the HVACR industry, according to Gurminder Sidhu, NATE senior director of business operations. She notes that the HVACR industry will soon be transitioning from hydrofluorocarbon (HFC) refrigerants to low-GWP alternatives. These new refrigerants have unique safety concerns, and this certification will help technicians use them safely. "By earning the certification, technicians can demonstrate that they have the job knowledge and skills needed."

## LOOKING AHEAD

NATE recently launched an online NATE Training Academy course that is connected to the Low-GWP Refrigerant Certification Exam (visit <https://natex.org/contractor/nate-training-academy>). The course covers the following topics: characteristics of refrigerants in the marketplace; tools, safe usage, and standard practices when working with A2L (a widely used class of refrigerants featuring low-GWP) refrigerants; safe storage and handling practices for refrigerants; and installation and service best practices when working with A2L refrigerants.

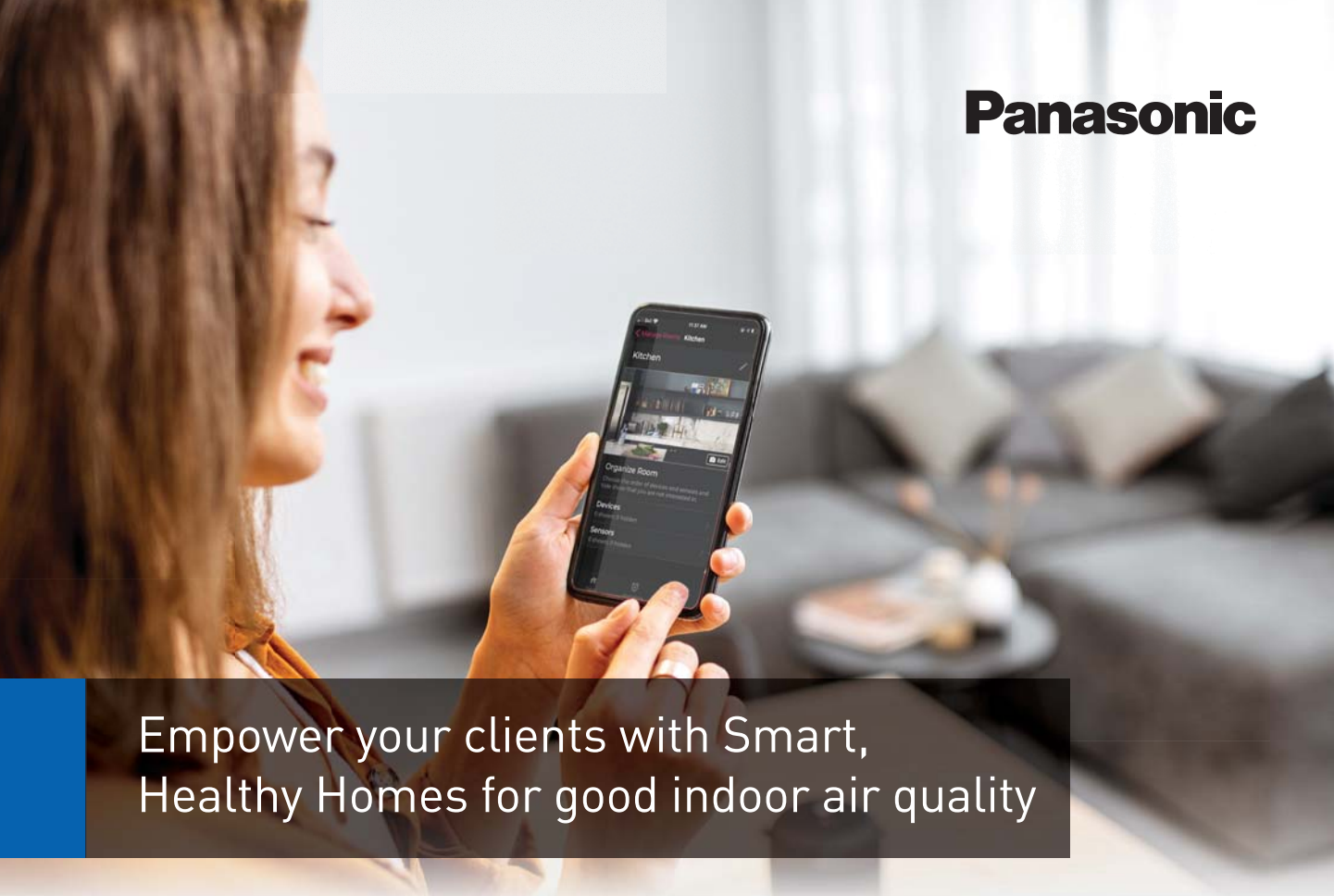
The refrigerant exam is further certification, in addition to the required EPA 608 certification. "There is no recertification element to the EPA 608," Sidhu says. "Our NATE refrigerant exam will have a recertification component to it; after two years, you can take the exam or do 16 hours of continuing education."

This article explores Low-GWP certification from two perspectives: members of the NATE Technical Committee that helped develop the exam, and test-takers who have successfully passed this new NATE exam.

## WORKING SAFELY WITH REFRIGERANTS

Bob Feathers, a member of the NATE Technical Committee that helped develop the exam, says, "As our country and industry move forward with new refrigerants that will achieve the goal of lowering GWP, it's important that NATE be in the forefront of training and certifying HVACR technicians to work safely and efficiently with these refrigerants."

Feathers recently retired from Emerson Climate Technologies, Sidney, Ohio, as a technical training specialist. He helped develop new training programs such as Compressor Applications & Technologies, the Supermarket Seminar, and Refrigeration Troubleshooting.



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Charles R. White, vice president of regulatory affairs for Plumbing-Heating-Cooling Contractors (PHCC) National Association, Falls Church, Virginia, another member of the NATE Technical Committee, says that the HVACR and refrigeration world has become more complex in recent years. Having NATE-certified technicians available assures contractors and consumers that the work with new refrigerants is being done by competent individuals.

“The advent of low-GWP refrigerants adds more layers to this evolution,” White says. “Safe practices for the handling and utilization of these lower-flammability refrigerants are important to protect personnel and property. It is important that the proper installation practices are followed, appropriate tooling is used, and equipment is commissioned for the highest performance efficiency. When used correctly, these low-GWP products will provide consumers with many years of trouble-free climate control.”

Completing the exam will help HVACR technicians expand their knowledge and capabilities in this area because it covers new safety concerns and procedures for using new low-GWP refrigerants. “The exam itself will not necessarily expand a technician’s knowledge, but preparation for the exam will,” White says. “The advent of low-GWP refrigerants will bring change in the market, and technicians will have to learn what those changes require. The exam will validate their knowledge and ensure that they are in compliance with the new product requirements.”

Safety is of utmost importance to technicians, and end users must be comfortable that the work is done correctly, Feathers adds. “For technicians, many aspects of the knowledge base that are already in play will need to be reinforced. Gaining an understanding of system design and what is done differently will be key components to installing and servicing new equipment.”

The exam itself is 70 questions long and includes five subject domains: Installation, Service, Safety, Types of Refrigerants, and Tools. Basic subject areas cover: refrigeration cycle and components; service procedures such as brazing, leak testing, evacuation, and charging systems; flammable refrigerant handling/transportation/storage; installation/service; flammable refrigerant safety; and standards and codes.

How did the Technical Committee develop the subject areas of the exam? Sidhu explains that committee members met during a Job Task Analysis meeting where subject matter experts discussed all the possible job knowledge areas and skills a technician would need to perform the tasks competently. From there, the list



“THE DIRECTOR OF TRAINING AND EDUCATION AT ITEC IS A FIRM BELIEVER IN THE CERTIFICATIONS AND HAS ENCOURAGED AND SUPPORTED ME IN TAKING AS MANY AS I CAN EARN.”

— Tim Smith, senior instructor, ITEC Training and Education Center, Rochester, New York

was narrowed down. “Finally,” she says, “the list of job knowledge areas and skills were sent out to a large group of industry professionals to rate the items on criticality and frequency and to suggest additions that the smaller committee might have missed.”

Members of the committee come from a broad range of stakeholders in the HVACR industry, such as original equipment manufacturers, national contractor associations, suppliers, contractors, and educational institutions, according to Feathers. “This provides a broad sweep of experience in our trade to share knowledge and prioritize the subject matter and develop questions that are not only necessary but also relevant to all the material.” Manufacturers of the new refrigerants participated in the job task analysis meetings, study guide review, and item writing.

How did the committee create the study guide? Using the Job Task Analysis, they contracted with an adult learning development specialist to create the basis of the guide. From there, the subject matter experts provided insight into each one of those areas. Exam questions were written independently and reviewed as a group. “Each one of NATE’s questions is multiple choice and has one discreet answer (no questions where the answer is all-of-the above or none-of-the-above),” Sidhu says.

Creating the exam questions was the hardest part of the process, according to White. “The committee works from the knowledge base to determine the number of questions needed per section, in effect creating a recipe for the test. Once that recipe is done, the committee brainstorms questions, answers, and “distracters” (wrong answers). These questions are discussed and debated and eventually hammered into the final questions.”

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## LOW-GWP REFRIGERANT-SAVVY TECHNICIANS

Tim Smith is senior instructor at ITEC Training and Education Center, Rochester, New York, where he instructs experienced technicians and individuals looking to begin their careers in the HVACR industry as well as the trades. He has been a full-time instructor there for two years. “My main focus is on developing new talent for our industry as more people are retiring out of the trades. ITEC works with companies and individuals throughout the East Coast.” Smith has been in the HVACR field for seven years, which includes five as a field technician and trainer.

Smith completed the Low-GWP Refrigerant Certification Exam in 2022 and also has the following NATE certifications: Core and Gas Heat Installation and Service 2016, Air Conditioning Installation and Service 2020, Heat Pump Installation and Service 2020, Hydronics Gas Installation and Service 2020, Hydronics Oil Installation and Service 2021, and Oil Heating (Air) Installation and Service 2021. “I gained my certifications through the traditional path of taking the CORE and then the specialties,” he says. “The director of training and education at ITEC is a firm believer in the certifications and has encouraged and supported me in taking as many as I can earn.”

Smith decided to take the Low-GWP Refrigerant Certification Exam during a Zoom meeting with a colleague in Maine who mentioned how he was seeing more equipment switching over to low-GWP refrigerants in his area. “I knew that New York State would not be far behind, so I ordered the NATE study guide for the exam and started reading the book. Working as an educator, I like to be on the cutting edge of all the new things in our industry so I can properly train and potentially present classes on these subjects.”

Smith says the exam wasn’t any harder to prepare for than the EPA 608 and should be required, as is the EPA 608. “Handling refrigerants can be dangerous for both the technician and homeowner if not done properly. All technicians should be fully trained on current and new refrigerants. The information in the book is vital to learning about these new refrigerants as well as handling them properly.”

Smith currently is building a lab at ITEC that will have equipment that features these new refrigerants. “We are in a hands-on industry, so my philosophy is to give individuals who want to work with these refrigerants a chance to train with them in a safe, structured environment.”

Alex Leeson has worked for Bosworth Air Conditioning and Heating Inc., Galveston, Texas, for the past 25 years. On a daily basis, he diagnoses and repairs air-conditioning and heating systems—ranging from small ductless sys-



“THE EXAM... WILL PREPARE ME FOR THE FUTURE AS LOW-GWP REFRIGERANTS ARE INTRODUCED INTO THE HVACR MARKET.”

— Kendall Merriweather, HVACR technician at Bosworth Air Conditioning & Heating

tems to 20-ton roof-top units. This includes some marine work and water-cooled units. He completed the Low-GWP Refrigerant Certification Exam in 2022.

“In preparing for the upcoming changes in the industry as a company, we decided to gain as much information on low-GWP refrigerants as possible, so taking the class and NATE exam seemed like a logical course of action,” Leeson says. “The new refrigerants that are being phased in within the year must be handled in a more specific way than are standard refrigerants. We wanted to learn the proper handling procedures and requirements for these new refrigerants.”

Overall, the exam was straightforward, according to Leeson, who notes that Bosworth Air Conditioning and Heating technicians took the course just prior to the test.

“The test questions followed the course very closely. I did not find any questions on the test that were not covered in the course.” He says his company is looking ahead to the changes with the upcoming EPA rules. “Thanks to the knowledge gained from this course and the subsequent test, our company should have little to no surprises concerning the handling and use of the new refrigerants.”

Kendall Merriweather is an HVACR technician at Bosworth Air Conditioning & Heating where he has worked the past two years. On a daily basis, he resolves issues with clients’ systems—ranging from preventative maintenance to service to full installations in residential, commercial, and marine areas. He completed the Low-GWP Refrigerant Certification Exam in 2022.

Merriweather decided to take the exam because he wanted to get certified for handling the new refrigerants. “I took the NATE Low-GWP Refrigerant class, took notes during class, and reviewed them thoroughly before taking the exam. The exam...will prepare me for the future as low-GWP refrigerants are introduced into the HVACR market.” ●

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

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# Slipstream: Training the Next Generation of Workers in Energy Efficiency

THE NONPROFIT OFFERS RESOURCES THAT CAN HELP HVACR TECHNICIANS ATTAIN THEIR NATE CERTIFICATION.

Slipstream (<https://slipstreaminc.org>) is leading the charge in career education, workforce development, and energy equity. The organization is an energy-efficiency and renewable-energy nonprofit dedicated to combatting climate change. It has a heavy focus on continuing education for professionals working in the energy field, including HVACR contractors and technicians.

The firm advances sustainability through energy consulting, technical assistance, continuing education, research, and program design. “Through our education and training programs, we are building bridges between our clients and the customer,” says Syed Abbas, director of education and training. He has been with the Slipstream organization for six years and adds that his company provides these offerings to a variety of utilities as well as industrial, commercial, and residential customers.

Abbas outlines Slipstream’s educational objective: “As with all our continuing education initiatives, our goal is to connect building professionals with the knowledge they need to stay ahead. To that end, we offer a variety of continuing education unit (CEU) credits based on the level of demand we see from people who attend our events and webinars.” He notes that his firm’s online catalog for



its virtual learning platform lists dozens of free online courses, many of which offer continuing education units (CEUs) for HVACR and building professionals. The catalog link is: <https://slipstreaminc.org/education-empowers/continuing-education-catalog>.

Users can search the catalog according to the CEUs available on a variety of subjects. One of the course offerings, on air-to-water hydronic systems, offers NATE certification credits. (Here is a link to that course description: <https://slipstreaminc.org/education/air-water-heat-pumps-and-hydronic-systems>.)

## MULTI-CHANNEL TEACHING RESOURCE

For Abbas, job certifications are crucial. “As we move forward with the goal to electrify residential heating and cooling at scale,” he says, “HVACR technicians play an important role as the direct point of contact with residents and homeowners. It’s important that the installer is someone people can trust. Certifications such as NATE demonstrate that technicians are knowledgeable experts that have the residents’ best interests in mind.”

Abbas explains that his organization’s trainings vary in subject matter and can cover the big picture as well as narrow topics. “We recently conducted a webinar on air-source heat pumps that was more of a broad overview, whereas other trainings have focused on the applications of smart thermostats or air-to-water heat pumps for hydronic systems.” Abbas adds that his organization is ready to assist with the right program: “If the goal of NATE certification is to provide a breadth of specific knowledge to HVACR professionals, then Slipstream can likely help fill in knowledge gaps in a variety of ways.”

The organization is a multi-channel teaching resource, according to Abbas. “We also reach professionals through live trainings, webinars, and videos on our YouTube channel. In 2021, we had more than 2,000 participants in our webinars and over 2,800 course completions through the U.S. Green Building Council’s learning platform,” he says. In



“AS WE MOVE FORWARD WITH THE GOAL TO ELECTRIFY RESIDENTIAL HEATING AND COOLING AT SCALE, HVACR TECHNICIANS PLAY AN IMPORTANT ROLE AS THE DIRECT POINT OF CONTACT WITH RESIDENTS AND HOMEOWNERS. IT’S IMPORTANT THAT THE INSTALLER IS SOMEONE PEOPLE CAN TRUST.”

— Syed Abbas, director of education and training, Slipstream



addition, Slipstream produced a Clean Energy Careers video series that reached 80,000 high school students in Wisconsin in 2021.

Slipstream is aiding in the development and training of the next generation of HVACR professionals. “Our organization,” says Abbas, “is committed to helping people find a career on the front lines of the clean energy transition. We are working hard to ease that transition and set up HVACR professionals with the expertise they need to make it happen for as many people as possible.”

Abbas also notes that one of Slipstream’s missions is to unlock the barriers that may thwart the capability to reach sustainability goals. It does this by providing continuous education and training. “In the clean energy arena,” he says, “HVACR technicians and contractors are at the vanguard of the clean energy economy. They have the skills and expertise to connect residents and homeowners with the technology to keep them comfortable and reduce carbon emissions. We can help them build trust with their customers by making sure they have the right information and knowledge—backed by real-world applications—to cement that connection with their customers.”

Some of the group’s initiatives include:

- A variety of continuing education efforts including webinars and a catalog of online courses. The group offers live educational events, including its annual Better Buildings: Better Business Conference in Wisconsin (visit <https://b4conference.org/>). The group offers many videos that anyone can access to expand their knowledge. Here is a link to Slipstream’s YouTube channel: [www.youtube.com/channel/UCsXTVYa8FRFHUcfm-7R8EXyQ](http://www.youtube.com/channel/UCsXTVYa8FRFHUcfm-7R8EXyQ).
- The group has produced a Clean Energy Careers video series.
- Slipstream is offering free online heat pump trainings for Michigan contractors in 2023.

- Slipstream is actively investigating how the next generation of HVACR pros can take advantage of the opportunity to build electrification in their business models.

Justin Margolies, Slipstream's senior product developer, points to another of his group's initiatives: "In Wisconsin, we co-facilitate an air source heat pump coalition made up of manufacturers, distributors, and state and local government actors. We help foster strong private-public-utility partnerships and alignment in the development and delivery of upcoming heat pump and electrification workforce development and training efforts in the state, and more broadly in the Midwest." Justin has been with Slipstream for six years.

He notes one priority his team focuses on in each of Slipstream's local markets: "We make sure HVACR professionals understand expected operational costs for heat pumps based on local rates and real-world performance. We help them effectively communicate economic impacts to customers. This includes ensuring that contractors understand the full capabilities of the newest generation of cold-climate heat pump technology."



"WE MAKE SURE HVACR PROFESSIONALS UNDERSTAND EXPECTED OPERATIONAL COSTS FOR HEAT PUMPS BASED ON LOCAL RATES AND REAL-WORLD PERFORMANCE. WE HELP THEM EFFECTIVELY COMMUNICATE ECONOMIC IMPACTS TO CUSTOMERS."

– Justin Margolies,  
Slipstream's senior  
product developer

## ALL THINGS ELECTRIFICATION

As Abbas sees it, electrification will be key. "The next generation of HVACR professionals are going to be important players in the move to electrify our heating and cooling with air-source heat pumps and other technologies. We are working hard to ease that transition and set up HVACR pros with the expertise they need to make it happen for as many people as possible."

Margolies adds: "Electrification is a hot trend right now in the climate community. Slipstream conducted early research on the idea of beneficial electrification and seeks to provide practical guidance to contractors on when electrification is beneficial, when it is not, and how to navigate barriers such as electric infrastructure upgrades."

Electrification defines the process of supplanting systems that use fossil fuels (coal, oil, and natural gas) with technologies that use electricity as a source of energy.

Electrification can potentially reduce carbon dioxide (CO<sub>2</sub>) emissions from several segments of the economy, including transportation, building, and industrial sectors, which account for roughly 65 percent of all U.S. greenhouse gas emissions, according to the U.S. Environmental Protection Agency's "Sources of Greenhouse Gas Emissions" report. The level of emissions reduction is dependent on the systems used to generate electricity.

One Slipstream initiative that is working to reduce CO<sub>2</sub> emis-

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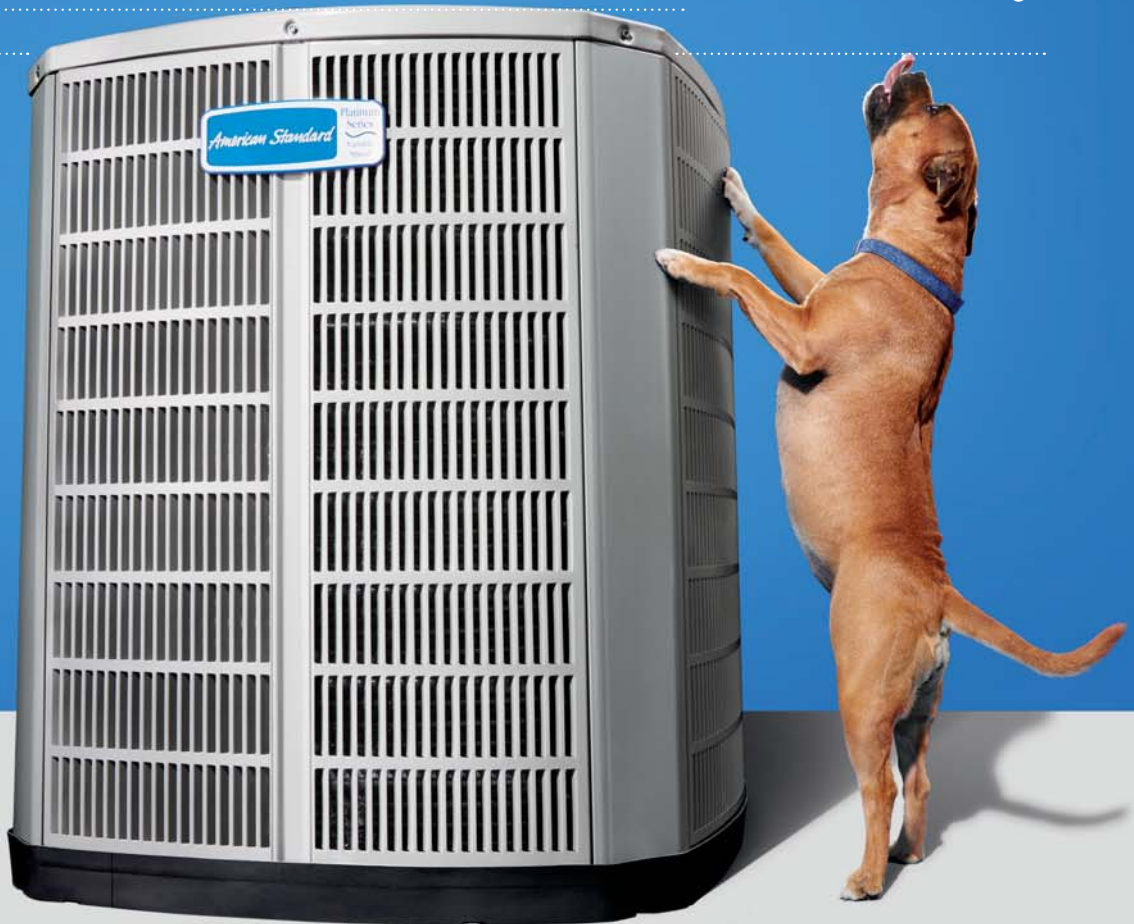
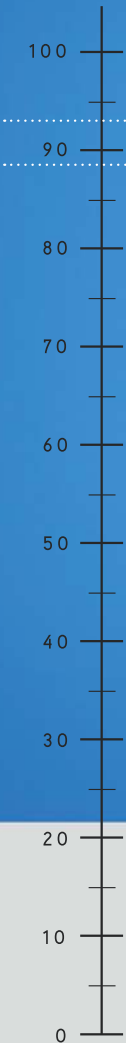
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sions is the group's efforts to provide recommendations to the city of Chicago on building decarbonization. In the Windy City, buildings account for 70 percent of total greenhouse gas (GHG) emissions. To support its climate action plan, the city established a building decarbonization working group. Slipstream had representatives on the working group to provide recommendations for how Chicago could meet future goals in decarbonization.

## ENERGY EQUITY

Abbas says his organization is working to help ensure energy equity in the U.S.—where energy equity means that all people share the benefits of the clean energy economy. “We want to make sure that the people in frontline communities with the highest energy burdens can access the technology that will make their homes

healthier and lower their utility bills — and we're always working to improve our accountability to the communities we serve.”

He explains that without some intervention, customers with low incomes will be the last to electrify heating. “If we only prioritize electrification for customers with higher incomes, gas rates will go up for those remaining reliant on gas — in which case customers with low incomes could face an even higher energy burden than they do today. Many of our efforts are careful to ensure that interventions actually lower people's utility bills.”

Abbas says the journey has just begun. “We still have a long way to go, and our job won't be done until everyone reaps the benefits of a clean energy future. Our biggest role is empowering as many building professionals as possible with the knowledge they need to help their clients make clean energy choices. We educated over 10,000 professionals in 2021, and our clean energy careers training series for high school students was available to over 80,000 youngsters.”

Abbas urges readers to go to this page at the Slipstream site—the link is: <https://slipstreaminc.org/solutions/energy-equity-solutions>.

At this page, readers will find an overview of the areas where Abbas' organization's work currently has the biggest impact for underrepresented groups. ●

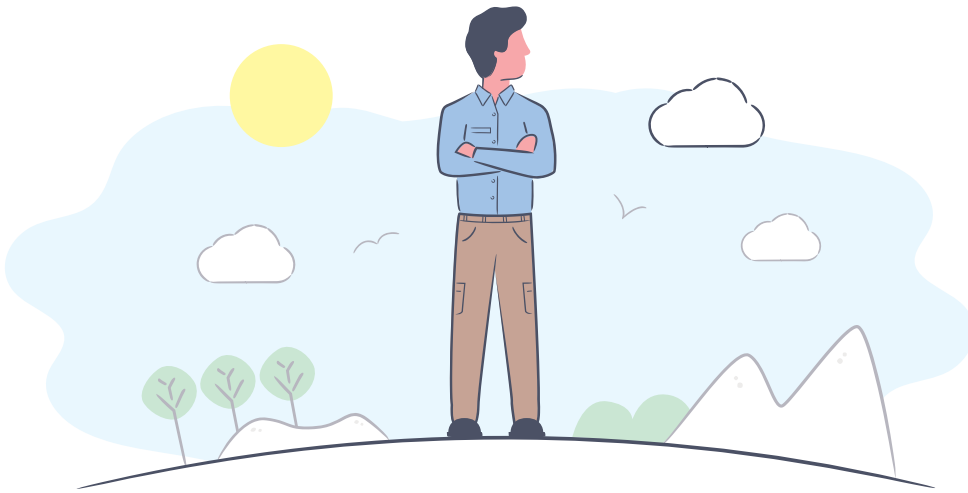
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Michael Keating is a contributor to the *NATE Magazine*.



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# “Labor of Love” Brings Electrify My Home Founder Out of Retirement

NATE-CERTIFIED BUSINESS OWNER AND TRAINER TOUTS NATE CERTIFICATION AS ONE OF THE MOST IMPORTANT STEPS TECHNICIANS CAN TAKE TO GET TO THE NEXT LEVEL.



Larry Waters knows a good thing when he sees it. From achieving NATE certification the year after NATE was founded to leading the transition to electric in California to setting up a company that keeps work-life balance and the environment in mind, he’s not one to shy away from tackling challenges.

In fact, Waters, the founder of Electrify My Home, Vacaville, California, has already retired once—but the thought of improving the industry even more brought him back again.

## ELECTRIC TRAJECTORY

Waters’ parents owned an appliance and refrigeration business when he was growing up, and both of his brothers went into the air conditioning trade. Waters attended tech school and also joined the industry.

“I got a union gig right away,” he says, “and just clicked off the box [for] service tech and not installer. That was the path I was sent down. I handled service at a couple of large

companies and cut my teeth on big commercial HVACR projects.”

After a number of years in commercial HVACR, he decided to try the residential pathway. Waters worked for several different types of residential companies over the years, from mom-and-pop operations to big national conglomerates.

Then in 2010, Waters earned his Building Professional Institute certification, which spurred his understanding of building science and using calculations to make houses perform better with correctly sized smaller systems. He leveraged this knowledge, eventually applying it to ducted inverter heat systems. It worked so well that it changed his entire career trajectory. Waters estimates that he has sold hundreds of ducted inverter heat pump systems over the years, as well as convincing his last company to move into electrification.

Recently, the State of California, via its California Air Resources Board, proposed a ban on the sale of all new

natural gas-fired space heaters and water-heating appliances by 2030. A final vote will take place in 2025. News of the proposal spurred Waters to start his own company.

## CARBON COMMITMENT

Waters’ company, founded in 2019, installs heat pumps and ductless mini splits, specializing in combining heat pumps with other all-electric products such as heat pump water heaters, smart thermostats, and induction stoves. Waters strongly believes in teaching good electrification and installing “small” (right-sizing with load calculations) using the house in a system approach.

Initial success with these systems and how much they were saving customers convinced Waters that this



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“I GOT MY AIR CONDITIONING INSTALLER CERTIFICATION THE YEAR AFTER NATE CERTIFICATION BECAME AVAILABLE, AND I STILL HAVE AIR CONDITIONER AND HEAT PUMP INSTALLER AND SERVICE. WE ACTUALLY HAVE A LARGE CEU PACKAGE THAT NATE TECHNICIANS—WHEN THEY COME TO OUR TRAINING—CAN USE TO GET 23 NATE CEUs.”

— Larry Waters, founder of Electrify My Home

was the right direction. In one early instance, Waters replaced a homeowner’s old system with a ducted system, updated the windows, and added some solar elements—saving the homeowner \$2,500 per year in utility costs.

After installing these types of systems, Waters started talking about them with peer groups that were doing similar projects. Eventually, he decided to focus his time and efforts only on heat pumps, ductless mini splits, and other all-electric products.

Today, Electrify My Home has five trucks with three two-person crews working on a rotating shift—10-hour days Monday through Thursday or Tuesday through Friday. There’s also a warehouse employee, an operations manager, and two office employees

along with Waters. Each job takes three to four days to complete.

“We’ve built our entire company around electrification,” he says. “We believe as part of good electrification that every customer has their electrification path; in California, you will not be able to live here and have gas after a certain point...Having somebody that understands that and puts the time into electrification is the way our business runs.”

To support energy conservation initiatives, Waters has reinvented the way the company interacts with customers so that the beginning steps are all virtual.

“Part of our carbon commitment,” he explains, “is that we don’t drive out to everybody’s house. I have a form on my website that people fill out. That



form tells me a lot about their house, and it sends me a comprehensive report. We match that up with some publicly available data, and then we schedule a one-hour call with the customer and basically do a customized webinar. Then, we follow up with pricing. If they accept the bid, we go out to their house and make sure that we can do it for that bid price and do the load calculations.”

The company does virtually zero advertising and gets upwards of 30 leads a month. “Everything’s word of mouth, and I go out and stump a lot,” Waters notes. “I’m a training guy, and I like to talk about our projects and initiatives, so I do webinars with the utility companies. I do these with the Bay Area Regional Energy Network...We generate work out of that and from referrals.”

Waters also is involved in a variety of other energy programs, such as sitting on the board of the Building Decarbonization Coali-



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tion. He also trains others on the electrification movement.

“We’ve developed our curriculum, and we actually train other contractors all over the state through two different state programs and through utilities,” says Waters. “We train other contractors on how to perform what we call good electrification and install small, which just means using load count.”

### BUILDING BRIDGES WITH NATE

Waters’ relationship with NATE spans nearly 25 years. He explains, “I got my air conditioning installer certification the year after NATE certification became available, and I still have air conditioner and heat pump installer and service. We actually have a large CEU package that NATE technicians—when they come to our training—can use to get 23 NATE CEUs.”

The class that Waters teaches is an in-person, three-day immersive electrification class for contractors. It covers the business opportunity, sales, how inverters work, and how to downsize a system by doing other

things to the house, such as installing new windows, additional insulation, and solar.

After the class ends, there’s the opportunity for interested companies to participate in an ongoing cohort masterclass—a 12-week follow-up to the class.

“It’s basically a virtual call once a week for two hours,” he says. “We bring in guest speakers and help participants work through understanding what it takes to be electrification contractors. We’re proud to say that we’ve run 10 companies through two cohorts.”

NATE certification is one of the most important steps technicians can take, according to Waters. One of his technicians is NATE-certified, and Waters plans to fast track certification for others next year. His employees tend to be newer to the industry, and he trains them himself to ensure they do things the right way for his business.

“NATE certification will be a requirement in order to get the next pay increase,” says Waters. “All my technicians are primarily third-year apprentices, and if they’re going to

get to the next level, they’re going to have to get NATE-certified. Those that I’ve worked with that have been NATE-certified have always gotten to the next point in their careers much quicker because they’re putting their education and their certification out there. It’s a benefit for rising up in your career.”

### LOOKING TO THE FUTURE

Waters retired briefly before starting Electrify My Home, but he’s very happy he made the move to electrification.

“I was perfectly happy,” he says, “and looking forward to retirement. I was working in sales and design, selling more than 3 million dollars a year, and making a good living. I decided to get into my own business, work twice as hard, and make less money the first few years. Now, we’re doing really well.”

And he’s not quite ready to retire—again—yet.

“My goals,” he says, “are to develop a network across the state, private-label equipment, and have Electrify My Home be known as the brand of home electrification in California and beyond. We’re trying to build a template for that right now. We’re putting our system and our business together in a way that is going to be easily shareable. Then, contractors that do the work the way we do, with the virtual assessments and the whole nine yards, can be affiliated with us.”

A company in Huntington Beach, California, is in the process of becoming Electrify My Home’s first affiliate.

“It’s really hard,” Waters concludes, “to change a business plan. That’s why I started a whole new business with one. I’m a proponent of the industry getting more quality- and design-oriented. We have great technology out there now that we can do it with.” ●

Elaine Yetzer Simon is a contributor to the *NATE Magazine*.



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# Product News

## AMANA

Engineered with forward-thinking technology and built to uncompromising standards, Amana brand AVZC20 inverter-driven heat pumps provide up to 21 SEER and 10 HSPF performance.

Compatible with off-the-wall ComfortBridge Technology, the AVZC20 features high-performing Comfort Speed inverter technology designed for consistent indoor comfort and quiet, variable-speed, energy-saving operation. Using the CoolCloud mobile app via Bluetooth, technicians can quickly commission, configure, and diagnose the system.

Outstanding heat transfer properties are delivered using a seven-millimeter, refrigeration-grade premium copper tubing and aluminum-fin condenser coil configuration. Recognized as Most Efficient of ENERGY STAR.

Contractor-friendly features include Amana brand control algorithmic logic; sweat connection service valves with easy access to gauge ports; top/side maintenance access; and single-panel access to controls.

The heat pumps are available in 2- to 5-ton units with heating capacities of 22,800 - 52,500 BTU/h, and covered by a Lifetime Unit Replacement Limited Warranty and are designed, engineered, and assembled in the USA. [www.amana-hac.com/](http://www.amana-hac.com/).



## AMERICAN STANDARD

The Platinum 18 heat pump is part of a new lineup of American Standard communicating equipment featuring American Standard Link, an innovative technology designed to simplify the installation, commissioning, and remote monitoring of variable speed HVACR systems.

Created to provide technicians with a “plug-and-play” experience, it assists with installation accuracy through automated configuration, charging, and system testing; it works with remote monitoring to provide quicker solutions and more efficient service calls.

The Link provides the exact data technicians need for installation and troubleshooting on their own smart devices.

These models have dual capability to operate with all existing AccuLink variable speed indoor equipment and controls, as well as the future American Standard Link air handlers and smart thermostats.

A full line of American Standard Link equipment will be available to American Standard’s independent dealer nationwide in Fall 2022. [www.americanstandardair.com/](http://www.americanstandardair.com/)



## CARRIER

In June 2022, Carrier introduced a redesigned Performance series 17 two-stage air conditioner and Performance series 17 two-stage heat pump that are compliant with the upcoming 2023 Department of Energy (DOE) minimum efficiency requirements. In addition, these two products have been tested under the new 2023 test procedures and have SEER2, EER2, and HSPF2 ratings published.



In the South region, any air conditioning unit that does not meet the new requirements cannot be installed as of January 1, 2023. Fines for installing non-compliant air conditioners can be as high as \$503.00 per unit. Carrier is pleased to offer a South region compliant air conditioning unit in advance of regulatory changes to its customers.

The Performance 17 air conditioner earns an impressive Seasonal Energy Efficiency Ratio (SEER) rating of up to 18.0 and an Energy Efficiency Ratio (EER) rating of up to 14.5. The Performance 17 heat pump reaches SEER ratings of up to 18.5, EER 2 ratings of up to 14, and Heating Seasonal Performance Factor (HSPF) ratings of up to 9.5. These two-stage models provide enhanced humidity control by operating in low stage to extract more humidity from the indoor air.

The Performance series 17 air conditioner and Performance series 17 heat pump are among the first in a line of products that meet the 2023 efficiency standards to be released in 2022. Carrier will offer a full line of heating and cooling products that meet the new criteria this year, ahead of the January 1, 2023, deadline as part of its #2023READY initiative. [www.carrier.com/residential](http://www.carrier.com/residential).

## DAIKIN

Daikin ATMOSPHERA is North America’s first home comfort product featuring R-32, a refrigerant with one-third the Global Warming Potential of USA’s and Canada’s most used refrigerants.



A single-zone, ductless system, the new Daikin ATMOSPHERA features impressive ratings up to 13.8 HSPF, 16.3 EER, and 27.4 SEER for ultra-efficient heating and cooling. Daikin ATMOSPHERA provides up to 100% rated heating capacity at 5°F WB and confirmed continuous operation as low as -13°F WB, with up to 100% rated cooling capacity at 115°F DB.

New hybrid cooling technology efficiently controls humidity, even in low-cooling loads, maintaining dehumidification effect after reaching target temperatures. A novel “CLEAN” operation dries the indoor unit’s interior, reducing condensation; a detachable drain pan provides easy cleaning. Indoor units include built-in WiFi for control via Daikin Comfort Control App. Four sizes are available from 9,000-24,000 BTU.

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## GOODMAN

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Goodman's inverter-driven systems provide efficiencies, helping reduce compressor wear and tear. They run at more energy-conserving speeds, reach indoor comfort settings more quickly, balance heat load through continuous dehumidification, and operate at lower sound levels, avoiding the constant on/off cycling compared to single- and two-stage systems.

The GVZC20 is ComfortBridge communicating technology compatible, allowing for easy commissioning and diagnostics using the CoolCloud phone/tablet application

Contractor-friendly features include Goodman control algorithmic logic; diagnostic indicator lights, seven-segment display with fault code storage; coil/ambient temperature sensors; sweat connection service valves; easy gauge port access; and more.

It is available in 2- to 5-ton units, with 23,400-52,000 BTU/h heating capacities.

Like all Goodman brand indoor comfort products, the GVZC20 heat pump is designed, engineered, and assembled in the USA.

[www.goodmanmfg.com/](http://www.goodmanmfg.com/)



## MITSUBISHI

The Intelli-HEAT Dual Fuel System provides cost-effective, efficient, and environmentally friendly heating and air conditioning all year long. Dual-fuel systems enable homeowners with gas furnaces to reduce their fossil fuel dependency and enjoy the benefits of all-electric, high-performance heat pumps. This technology is a bridge between old and new technologies, similar to hybrid cars.

Intelli-HEAT's versatile design optimizes variable-speed technology and smart controls, resulting in lowered utility bills, reduced GHG emissions of up to 40%, and a quieter outdoor environment while providing the perfect comfort level.

Intelli-HEAT integrates cold-climate Hyper-Heating INVERTER (H2i) heat pump technology with existing furnaces to provide all-electric heating down to -13° F, with 100% heating capacity down to 5° F. Intelligent comfort control manages operation between the heat pump and furnace. This blending of technologies provides better comfort, reduces energy costs for homeowners, and is better for the environment. Intelli-HEAT is compatible with most thermostatically controlled furnaces.

[www.mitsubishicomfort.com](http://www.mitsubishicomfort.com)



## RHEEM

Built with contractors and installers in mind, the Rheem Endeavor Line Classic Plus Series R962V is an ENERGY STAR certified furnace featuring 96% AFUE, resulting in energy efficiency savings. With quieter operation top-of-mind, insulated cabinets and truly variable speed airflow technology make these units one of the quieter furnaces available. Additionally, with the latest in sensor technology, the EcoNet monitoring system provides a new level of protection, control, and energy savings. The unit also boasts PlusOne Diagnostics with built-in Bluetooth connectivity and Rheem Contractor app compatibility, which are all specifically designed to streamline installation and simplify service.



## TRANE

The new Trane Platinum XV20i Heat pump is part of a new line of equipment featuring Trane Link, a communication technology that simplifies installation, commissioning, and remote monitoring of Trane's variable speed systems. Created to provide technicians with a plug-and-play experience, Trane Link assists with installation accuracy of the XV20i through automated configuration, charging, and system testing. Technicians can ensure a speedier setup as Trane Link self-identifies the equipment, provides automatic connection through Bluetooth mesh, and utilizes standardized color-coated wiring.

Through Trane Link, technicians also can experience more efficient service calls and troubleshooting, as the technology provides the exact data they need on their own smart devices. The full line of Trane Link equipment will be available to Trane's independent dealers nationwide in fall 2022. [www.trane.com](http://www.trane.com)



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