

TECHNICIAN CERTIFICATION FOR THE HVACR INDUSTRY | AUG. 2021

# NATE

M A G A Z I N E

## PROMOTING IAQ BEST PRACTICES

### INCLUDING:

IAQ AND TECH  
TRAINING AT NCI

IAQ: THE RACE  
TO TRAIN

ENERGY-EFFICIENCY  
UPGRADES



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Best Practices

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Training are Top of Mind at  
National Comfort Institute

IAQ is Part of RSES Training

Colorado Association Facilitates  
Residential and Commercial  
Energy Efficiency

Spotlight on NATE Technicians

# Trained HVACR Technicians Play a Pivotal Role in Implementing Indoor Air Quality Improvements



Over the past year, our increased focus on health has shifted many of our attitudes and priorities. In particular, the COVID-19 pandemic has affected many homeowners' perceptions of indoor air quality (IAQ). When the temperatures rise, homeowners are now not only thinking about how to keep their homes cool and comfortable, but they are also thinking about how the air inside their homes is affecting their health.

They are right to be concerned, and I am glad there is a new emphasis on how our HVACR systems can affect our quality of life when we are indoors. Breathing quality indoor air is critical for good health. We spend around 90% of our time in our homes, offices, and other buildings—where gases, chemicals, and other pollutants can cause headaches, eye irritation, allergies, and fatigue. Since we spend the majority of our time indoors, it is important to ensure the air we are breathing is clean.

I believe HVACR technicians are the ideal individuals to implement IAQ improvements to help home and business owners. Trained HVACR technicians are best-suited to service, adjust, inspect, and clean the ducts, condensate pans, humidifiers, and blowers that affect a building's IAQ. With just a little bit of care and training, technicians can turn our homes and offices into high-performing spaces.

NATE certification is one step technicians can take to be prepared to tackle this important issue. Additionally, with our focus on continuing education, we encourage certified technicians to learn about recent improvements and changes to the ways we can improve indoor ventilation.

There are other leaders in our industry that are doing an incredible job raising awareness. In this issue, you can find our conversation with Francis Dietz, vice president of public affairs with Air-Conditioning, Heating, and Refrigeration Institute (AHRI), where he talks about their IAQ campaign. We also talked to Roger Hensley, the Educational & Examining Board chairman of Refrigeration Service Engineers Society (RSES) about their organization's commitment to improving IAQ through better training of technicians.

For many of us, this has been a busy few months. Not only is summer a hectic time for anyone working in the HVACR industry, but this has also been the first opportunity many of us have had to see friends and families safely. No matter how busy things get, I always recommend finding time to teach and train our technicians. Whether we are sharing information on IAQ best practices while out in the field, or sitting down for a webinar, we should all aspire to continually grow and improve our skills. At the end of the day, this is about making the industry stronger—and making technicians better. ●



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# 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)!

**WHAT'S THE BEST WAY TO PREPARE FOR MY UPCOMING NATE EXAM?**

The best place to start is to review Knowledge Areas of Technician Expertise (KATEs) for your exam. 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. You can find the KATEs for your exam on the NATE website ([www.NATEX.org](http://www.NATEX.org)), in the Exams Offered section.

You may find further assistance by purchasing a study guide in our NATE Online Store. Study guides are written by NATE and reflect knowledge areas covered in the real exam. With practice questions at the end of each chapter, study guides are an invaluable tool for self-study. You also can attend a NATE-approved training class, held by a NATE-recognized Training Provider. You also may ask the NATE testing organization you choose to test at whether any test prep is offered.

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When you receive the email from BadgeCert containing your digital badge for your NATE certification, click on "certificate" or "wallet" on the certification page to download the PDF. If you have earned many NATE certifications and would like to have a custom certificate or wallet card made for you to show all your certifications together, please visit the NATE Online Store. For further questions about your digital badge, you can contact BadgeCert at [support@badgecert.com](mailto:support@badgecert.com).

**I JUST ADMINISTERED A PAPER-AND-PENCIL NATE EXAM. WHEN DO I NEED TO MAIL THE USED EXAMS?**

Used exams must be mailed out within two business days of the test session. Please make sure packages have a tracking number. Unused exams can be kept in a secure location until your next scheduled exam session.

## Word Search

	W	O	L	F	R	E	S	I	D	E	N	T	I	A	L
1. Quality	S	K	R	A	U	R	F	T	G	B	W	F	F	N	R
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10. Mount	Q	B	U	N	F	X	O	T	I	F	V	Y	Y	L	T
11. Circuit	H	K	R	O	W	E	L	E	T	R	O	P	P	U	S
12. Thermostat	G	M	A	X	W	Y	N	D	D	S	A	E	D	O	A
13. Study Guide	D	T	F	A	D	C	I	R	C	U	I	T	J	U	T
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15. Heat															

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# NATE News

## SCOTT SAVIDGE JOINS NATE TECHNICAL COMMITTEE

This spring, NATE welcomed Scott Savidge to the NATE Technical Committee. Savidge is a technical field supervisor with Isaac Heating and Air Conditioning, Rochester, New York.

The NATE Technical Committee consists of volunteers across the country representing industry contractors, educators, distributors, and manufacturers. The Committee reviews all NATE exams, study guides, and certification pathways to ensure the subject areas of the exams cover all the knowledge and expertise HVACR technicians need to be at the top of their field. The rigorous review process for each exam and guide lasts months and involves careful input from each member. Additionally, the exams are regularly reviewed and updated to reflect the evolving technology in the HVACR field.

### Fieldpiece



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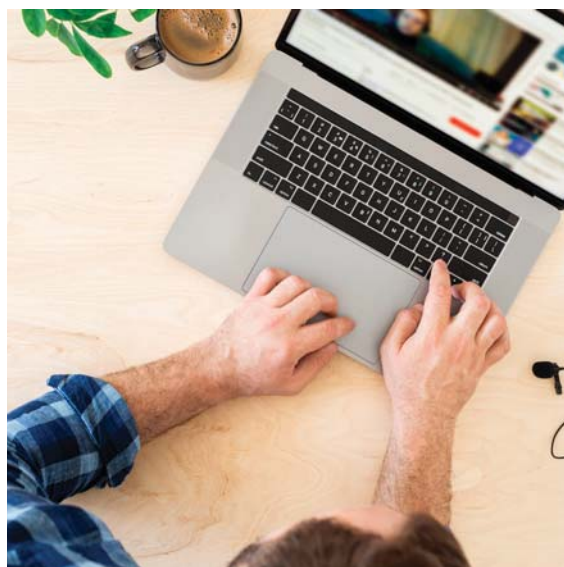
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## NATE RETURNS TO THE OFFICE

In July, NATE staff returned to work in-person in the NATE office in Arlington, Virginia. NATE staff has been working remotely since April 2020 in response to COVID-19. While limited numbers of NATE staff came into the office regularly over the past year to manage NATE store orders, this marks the first time all NATE staff have returned to the office space. NATE remains committed to maintaining its team's health and safety and has adopted additional protocols to ensure a safe return to the office, including increased sanitization procedures.



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## SCHEDULING LIVE ONLINE PROCTORED EXAMS

NATE offers remote Live Online Proctored exams for the HVAC Support Technician Certificate exam, the NATE Certification exams, and the EPA 608 Exams. With the Live Online Proctored exams, technicians can take the exams from home on their own schedule.

NATE partners with Examity, an online testing platform, to provide this new service to technicians. Examity recently updated its scheduling options for the exams, and technicians can now schedule their exam appointment as soon as 24 hours in advance.

Once technicians have purchased a Live Online Proctored exam, they will receive an email with a link to Examity's scheduler page to select a date and time slot. For more information about Live Online Proctored exams and scheduling, visit [www.NATEX.org/LOP](http://www.NATEX.org/LOP).

# Industry News

## SURVEY RESULTS EMPHASIZE THE IMPACT OF COVID-19 ON HOMEOWNERS' CONCERNS WITH IAQ

A recent survey conducted by Rotobrush International LLC, Grapevine, Texas, a provider of indoor air quality (IAQ) solutions, indicates homeowners have a strong interest in cleaning the air ducts in their home and taking proactive steps to improve indoor air quality (IAQ).

Conducted by Engine Insights in partnership with Rotobrush, the research included responses from nearly 400 households throughout the United States. While IAQ has increasingly become a concern in recent years, the pandemic brought additional attention to how important it is to reduce airborne contaminants.

In the survey, 49% of the respondents said they were very concerned or somewhat concerned about the spread of COVID-19 inside the home. Nearly half of the respondents also paid a lot of attention to news reports on the airborne transmission of COVID-19.

Additional highlights from the survey include:

- 32% paid between \$451 and \$1,000 to have their air ducts professionally cleaned
- 91% believe that clean air ducts create a healthier home
- 89% believe a well-functioning duct system and furnace can remove dangerous particles from the air
- 91% felt better when breathing the air in the house after the ducts were cleaned or vacuumed
- 79% would like a duct cleaning service to offer an indoor test to measure the purity of their indoor air
- 28% bought an indoor air cleaner or purifier since the pandemic started
- 38% are very likely or somewhat likely to consider buying an indoor air cleaner or purifier
- 37% have been changing their air filters more often since the pandemic

"Homeowners are putting a greater emphasis on actively creating a healthier indoor environment for their family and themselves," says Bob Elledge, president and CEO of Rotobrush International. "This is an opportunity for contractors to provide customers with education on how they can improve the air quality in their home. From having their air ducts cleaned to purchasing an indoor air cleaner, there are several solutions that offer many benefits, including reducing harmful contaminants."

## METUS LAUNCHES NEW WEBSITE

*MitsubishiComfort.com*, the new website from Mitsubishi Electric Trane HVAC US (METUS), was recently launched. It serves as a hub for professionals and homeowners to review information on METUS systems that heat and cool buildings.

Professionals, for example, can use the website to locate a distributor, register systems, access tools, sign up for training sessions, and find the manufacturer-level support they need to make each project a success. The site includes custom portals for contractors, distributors, and METUS employees.

Homeowners can learn about the benefits of Mitsubishi Electric heat-pump technology through articles, videos, and case studies. They also can use the website to find available rebates, financing information, or request a consultation with a Mitsubishi Electric Diamond Contractor or Ductless Pro qualified provider; these are independent professionals who have completed METUS training and have a high level of experience with METUS systems.

To experience the website, visit *MitsubishiComfort.com*.



## DAIKIN FACILITATES ADOPTION OF EQUIPMENT USING HCF-32

Daikin Industries Ltd. has added 123 new patents to its HCF-32 Patent Non-Assertion Pledge, which includes a grant of free access to its pledged patents in relation to certain HVACR equipment that uses the non-blended, single-component refrigerant HFC-32 (R-32). Approximately 300 patents are now free to use and do not require permission or a written contract with Daikin.

HFC-32 has many advantages that can help reduce the environmental impact of air-conditioning, heat pump, chiller, and applied equipment. It is a non-ozone depleting refrigerant with a global warming potential (GWP) that is one-third of current R-410A refrigerant.

For more information, visit [www.daikin.com/patent/r32/](http://www.daikin.com/patent/r32/).

# AHRI, NATE Work to Promote IAQ Best Practices



THE HVACR  
INDUSTRY PLAYS  
A VITAL ROLE IN  
HELPING BUILDING  
OWNERS AND  
HOMEOWNERS  
CREATE AND  
MAINTAIN AN  
OPTIMAL INDOOR  
AIR QUALITY.

From the importance of proper hand-washing and social distancing to masks and droplet sizes, our immediate surroundings have taken on greater significance than ever before during the past year and a half. Issues that probably rarely crossed most people's minds before 2020 have become of paramount concern in today's environment.

Indoor air quality (IAQ) is another piece of the puzzle that occupies a higher profile in the public consciousness now, despite the fact that its effects play a role in health and comfort that goes way beyond COVID-19.

"A room's IAQ can impact both positively and negatively the health, comfort, well-being, and productivity of the people inside," says Daisy Weill, NATE's marketing manager. "Americans spend roughly 90% of their time indoors, and most of that is time spent in their home and office. The COVID-19 pandemic has affected many homeowners' perceptions of IAQ, especially since they have spent more time at home over the past year."





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## WHY IAQ IS IMPORTANT

According to the U.S. Environmental Protection Agency, indoor concentrations of some pollutants have increased in recent decades due to such factors as energy-efficient building construction (when it lacks sufficient mechanical ventilation to ensure adequate air exchange) and increased use of synthetic building materials, furnishings, and cleaners. Outdoor air pollutants can enter buildings through open doors, open windows, ventilation systems, and cracks in structures. Some pollutants come indoors through building foundations, according to the EPA.

These pollutants can cause a variety of health issues for building occupants, from immediate, short-term effects like throat irritation and viruses to long-term and some-

times fatal illnesses such as asthma and lung disease. In fact, according to the World Health Organization, indoor air pollution is responsible for the deaths of 3.8 million people annually.

Francis Dietz, vice president of public affairs for the Arlington, Virginia-based Air-Conditioning, Heating, & Refrigeration Institute (AHRI), points out the importance of the HVACR and water heating industry in helping building owners create and maintain an optimal IAQ. The group is involved in making sure that technicians are aware of the importance of their role in IAQ and also know what steps are required.

"It's always best to keep people as healthy as possible in an indoor space. And you're not just talking about pathogens," he says. "There are allergens, dust mites, and all kinds of other types of dust and things that get circulated through the air. The goal is to filter out as much as you can."

Dietz agrees that the current COVID-19 situation has increased the general public's focus on the issue, but it will remain important even if consumers aren't paying as much attention to it.

"The question," he says, "is going to be whether it remains at the top of people's minds or whether it starts to fade a little bit. My guess would be, it will start to fade a little bit, but that doesn't diminish its importance. It doesn't mean that building owners and homeowners should not be vigilant about making sure that they have the optimal amount of safety. It also doesn't diminish the importance of contractors and technicians bringing that to people's attention."

## FIVE STEPS TO SUCCESS

Technicians need to be the experts and "any technician worth his salt" will bring up IAQ with customers and recommend the proper filters, humidifiers, UV light treatments, or whatever other options are appropriate, according to Dietz.

"There are any number of things that they could put in, and that's true for residential and commercial buildings," he says.

To help building owners and managers understand the various nuances of the IAQ issue, AHRI recently published two white papers: "Anatomy of a Healthy Commercial Building" and "Anatomy of a Healthy School." The group writes in the commercial building version: "As businesses, corporations, associations, and other entities prepare to have their employees return to offices spaces, building owners, operators, and engineers need reliable information on steps they can take to help make the commercial spaces they control as safe and welcoming as possible. A large part of that effort will involve a building's heating,



ventilation, air conditioning, and water heating infrastructure. America's HVAC equipment manufacturers are committed to providing the technologies that can make all public buildings as safe and health-affirming as they can be."

The paper lays out five steps that can help lead to a successful IAQ outcome:

### 1. A HEALTHIER COMMERCIAL BUILDING BEGINS WITH A QUALIFIED CONTRACTOR

Building officials should consider retaining the services of a qualified design professional; a certified commissioning provider; or a certified testing, adjusting, and balancing (TAB) service provider, especially for larger, more complex HVACR systems, such as those found in commercial spaces or for systems serving critical spaces within buildings. In addition, the white paper also recommends that officials seek contractors that employ technicians certified by NATE who have been highly trained, tested, and found proficient in one or more of 11 HVACR-related specialties.

### 2. VENTILATION IS KEY

When it comes to pathogens, moving more air and providing more outdoor air is beneficial, according to the paper, which cites guidance from the Centers for Disease Control and Prevention and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), both of which call for increased outdoor air ventilation.

Technicians, Dietz explains, will know what the "sweet spot" will be in terms of amount of outdoor air versus the amount of energy required to cool it and other factors.

### 3. FILTRATION IS A MUST

Building engineers are encouraged to improve the efficiency of the filters serving their HVACR systems within the guidance provided for most of the building types listed on the ASHRAE COVID-19 Preparedness Resources website.

This step also requires a certified technician who knows what the optimal filtration is for the size of the system in question, according to Dietz.

"You can put in the tightest filter possible," he says, "but if your system cannot push the air through that filter in an optimal way, you can actually damage your system. You need to have technicians that are trained to look for those things."

In addition, a qualified HVACR technician has the tools to determine the maximum possible Minimum Efficiency Reporting Value filter for an individual system.

### 4. UV LIGHT TREATMENT SHOULD BE CONSIDERED

The white paper points out that ultraviolet light, which has been proven to kill the virus that causes COVID-19, can be used as a supplement to filtration, killing pathogens that escape.

### 5. HUMIDITY CONTROL IS ALSO IMPORTANT

According to ASHRAE's Building Readiness Guidelines, "...research indicates that maintaining the space relative humidity between 40% and 60% decreases the bio-burden of infectious particles in the space and decreases the infectivity of many viruses in the air. The [engineering] team should consider adjusting the space comfort setpoints to increase the system's ability to use more outside air."



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## INDUSTRY COOPERATION

Along with publishing the two white papers on IAQ, AHRI also ran digital ad campaigns to publicize the issue and targeted publications that are read by policymakers in Washington, D.C.

In addition, Dietz says that AHRI recently partnered with the Heating, Air-conditioning & Refrigeration Distributors International (HARDI), the Plumbing-Heating-Cooling Contractors (PHCC) National Association, and the Building Owners and Managers Association (BOMA) to present several webinars. AHRI also has worked with ASHRAE to try and raise awareness of the importance of IAQ.

Dietz notes that the group has gotten very positive feedback from people who are grateful for the information. “Congress can appropriate billions of dollars, but the information on how best to use that for the benefit of the different communities—that responsibility falls to us to spread that word,” he says.

“There’s a hunger out there for that information,” he continues, “and we are leveraging our relationships with HARDI, ACCA, PHCC, BOMA, and ASHRAE so that everybody can spread the word and we’re all on the same page with respect to the importance of this issue.”

COVID-19 and the pace of innovation are spurring the various groups to work together on IAQ education.

“It’s an awareness issue and a new innovation issue,” Dietz says. “It’s more at the top of people’s minds, so when a company is looking at office space, they’re probably going to talk to the building engineer to find out if IAQ has been optimized for the space. I don’t know that you can really expect homeowners to be up on the innovations as much, so the important thing is for technicians to know what the latest innovations are and what the latest recommendations are and to pass those along to the homeowners.”

The next step, according to Dietz, is to create standards so that everyone in the industry is working on the same playing field. AHRI is working with HARDI on this initiative.

“There’s been an issue with companies sort of coming out of the woodwork and making claims that can’t be verified,” he says. “We’re talking about coming up with some standards for specific technology areas to create a comfort level among contractors and specifiers. There are technicians who won’t dare to recommend installation of certain technologies because they can’t verify the claim.”



“CONGRESS CAN APPROPRIATE BILLIONS OF DOLLARS, BUT THE INFORMATION ON HOW BEST TO USE THAT FOR THE BENEFIT OF THE DIFFERENT COMMUNITIES—THAT RESPONSIBILITY FALLS TO US TO SPREAD THAT WORD.”

— Francis Dietz, vice president of public affairs for AHRI

The end goal of all of these efforts is a seamless IAQ continuum, according to Dietz.

“That involves [research and development] and innovation, testing, and then training with the contractors and technicians with standards for specific types of IAQ so that everybody is on the same page,” he says. “[We want] consumers and those in the building and school communities to know that we’re all a resource and that we’re working together to ensure the proper health and safety of folks who use our equipment, which is everybody, really.”

## NATE’S EFFORTS

IAQ is an issue that NATE addresses in a variety of ways, including promoting innovations and standards.

“NATE exams are developed and periodically reviewed by a technical committee comprised of industry experts,” Weill says. “The technical committee created the Knowledge Areas of Technician Expertise (KATEs) for each exam to test that candidates have the necessary knowledge and skills to correctly install, diagnose, and repair HVACR systems. That knowledge naturally overlaps with IAQ essentials.”

In particular, NATE certification exams test candidates on air quality topics, including ventilation, air cleaning, and air flow, according to Weill.

“These topics are covered in both the Certified HVAC Professional (CHP-5) exams, as well as in the Core and Specialty exams,” she says. “Additionally, technicians that take the NATE HVAC Support Technician certificate exam are expected to understand IAQ fundamentals.”

When it comes to training on the topic, Weill says many of NATE’s Recognized Training Partners offer courses related to IAQ innovations and standards that technicians can apply to the continuing education hours they earn for NATE recertification. ●

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



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# Indoor Air Quality and Technician Training are Top of Mind at National Comfort Institute



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THE INSTITUTE  
IS GEARING UP  
FOR ITS “HIGH-  
PERFORMANCE  
HVAC SUMMIT 2021”  
AT THE END OF  
THIS MONTH.

**A**s the National Comfort Institute (NCI) prepares to stage its “High-Performance HVAC Summit 2021” at the end of August, *NATE Magazine* sat down with the NCI’s Chairman and CEO Dominick Guarino.

NCI is a global organization based near Cleveland, Ohio, that offers training, certification, and member services for the air conditioning, heating, and plumbing industries and the air balancing and energy rating professions. NCI provides heating, air conditioning, plumbing and electrical contractors with focused services and tools to help them improve their business-



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es, differentiate themselves, grow, and become more profitable. The organization, whose site is *www.nationalcomfortinstitute.com*, delivers over 100 live training events per year and is the home of Performance Based Contracting™. For homeowners, NCI hosts this helpful site: *www.my-homecomfort.org*.

### FOCUSED ON PERFORMANCE

“Performance-Based Contracting” is a term coined by NCI which describes its proprietary approach that originated with delivering measured performance in HVACR systems to consumers. The term was later expanded to further describe how contractors manage their businesses through accountability and measurable results. Performance-Based Contracting “is as much about changing a company’s culture as it is proving that you did what you said you were going to do,” explains NCI.

Guarino says the COVID-19 pandemic has affected both contractors’ and customers’ perceptions of indoor air quality (IAQ), which refers to the air characteristics within and around buildings and structures. “The pandemic has certainly increased awareness of IAQ issues, both with homeowners and commercial building owners and occupants. Many commercial contractors have had to re-educate themselves on meeting current ventilation standards.”

Guarino adds that many of those contractors have also had to educate their field people on proper installation of systems with economizers, and learn how to repair or replace poorly functioning economizers and



“THE PANDEMIC HAS CERTAINLY INCREASED AWARENESS OF IAQ ISSUES, BOTH WITH HOMEOWNERS AND COMMERCIAL BUILDING OWNERS AND OCCUPANTS. MANY COMMERCIAL CONTRACTORS HAVE HAD TO RE-EDUCATE THEMSELVES ON MEETING CURRENT VENTILATION STANDARDS.”

– Dominick Guarino, NCI’s Chairman and CEO



### SUMMIT 2021 LOCATION

- Branson, Missouri, is the home of NCI’s 2021 Summit. Branson features three area lakes, over 100 live shows, a vast array of lodging options, and family-oriented activities.
- Attendees at NCI’s 2021 Summit can experience a wealth of live entertainment, attractions, outdoor beauty, food, and genuine Ozark hospitality that will make them feel right at home.
- Go here to register for the NCI’s 2021 Summit: [www.gotosummit.com/](http://www.gotosummit.com/)

controls. He adds that source control, ventilation, and filtration are very important to solving IAQ problems in commercial facilities.

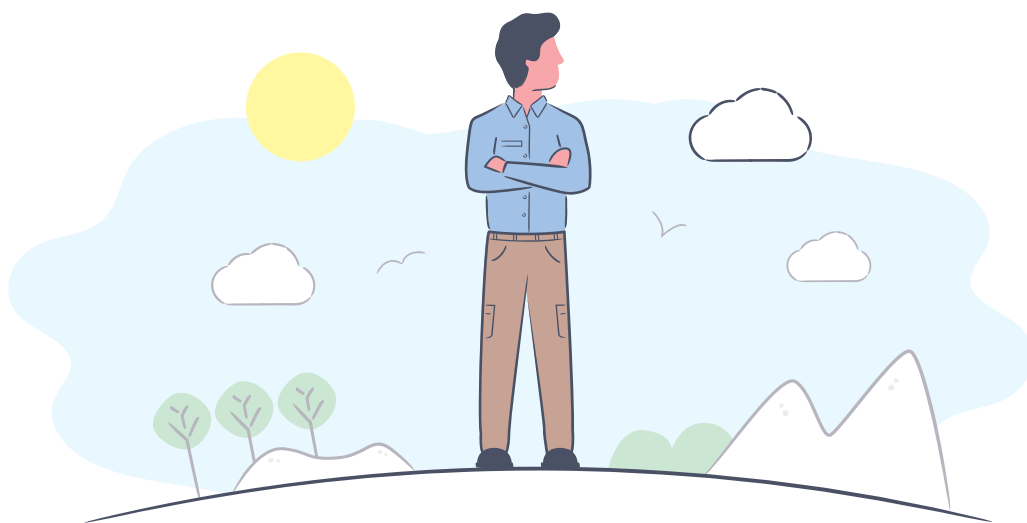
Contractors’ crews require focused training to handle customers’ IAQ needs. “The area where contractors need the most training is learning how to measure airflow so they can assess current ventilation systems, make the right recommendations, and renovate ventilation systems. On the filtration side, one of the most important things they need to understand is the impact of different filters on system static pressures.” Guarino notes that installing high-efficiency filters without calculating and/or measuring these impacts can actually worsen IAQ in homes and buildings.

NCI offers several IAQ training courses for technicians. One is an advanced course called “Testing and Certifying Ventilation Systems and Economizers.” The prerequisite for this training module is NCI’s “Commercial Air Balancing” certification course. “Most of our airflow-related courses on the residential side help students learn how to measure and assess IAQ and comfort problems in residential buildings,” Guarino notes.

At the bottom of the NCI home page, visitors can click on seven training modules under the heading “Get Training.” Areas of NCI training include: Residential HVAC

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## IAQ TAKES CENTER STAGE

Defining IAQ can be a challenge. “While there are existing American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) IAQ standards,” says Guarino, “it can be subjective based on the needs of the home or building’s occupant. HVACR contractors need to assess the occupant’s needs, wants, and existing issues to recommend the correct solutions.” (Go to this site to view ASHRAE’s “Standards for Ventilation and Indoor Air Quality”: [www.ashrae.org/technical-resources/book-store/standards-62-1-62-2](http://www.ashrae.org/technical-resources/book-store/standards-62-1-62-2).)

“It’s pretty common for our industry to recommend Band-Aid solutions to IAQ problems, when often they miss the root causes,” Guarino explains. He offers this example: Infiltration due to building depressurization brings in outside air from all the wrong places such as dirty, dusty attics and crawlspaces. He outlines how things can get complicated: “Leaky ductwork is often the culprit, but the quick solution is to add more filtration, which oftentimes can further restrict airflow causing even more problems, ranging from uncomfortable rooms to poor ventilation—even moisture issues that can cause mold and mildew.”

For today’s HVACR technicians, training is quite important, Guarino believes. “Techni-

## JUST AROUND THE CORNER: NCI’S 2021 SUMMIT

The National Comfort Institute’s (NCI) High-Performance HVAC Summit 2021 takes center stage in Branson, Missouri, August 30-September 2. It is the main event for Performance-Based Contractors from across North America. The conference will focus on selling and delivering high-performance HVACR systems. Each topic area will have breakout sessions with three options: Novice, Practitioner, and Mastery.

### Breakout session options for attendees include:

- **Novice**—Just beginning to learn the specific discipline;
- **Practitioner**—Attendees who have begun practicing these skills and want to take it up a notch, or just need a refresher on the topic; and
- **Mastery**—Choose this option if you are already proficient in the specific area and are ready for the next skill level.

NCI’s new conference design lets attendees choose sessions based on where their careers are today. Attendees may need a Novice session in some areas, while in others they may be ready for Practitioner or even Mastery level training.

NCI’s 2021 Summit has special pricing this year. Conference managers want to make it easy for attendees to bring their whole team. If attendees bring three or more people, they will qualify for the biggest discounts available.

Early-bird pricing is available for attendees at the NCI’s 2021 Summit. Conference attendees can earn NCI membership discounts as well as other discounts. The event features speakers who have a wealth of HVACR experience.

Goodman/Amana Inverter Contractor Day takes place August 30, 8 a.m. - 4 p.m. Goodman Manufacturing is hosting a full day of training on how to integrate current HVACR inverter technology into contractors’ offerings. Topics range from marketing to pricing, sales, and financing.

Top HVACR industry professionals will lead this day of training. This activity is available for \$295 as a standalone event. However, Goodman has agreed to waive the training fee and offer it at no charge to Summit Attendees. Breakfast and lunch are included in this training activity.

### Valuable Breakout Sessions at NCI’s Summit 2021 include:

- **Session One:** Airflow Diagnostics and Air Upgrade Workshops
- **Session Two:** High-Performance Sales Workshops
- **Session Three:** High-Performance Implementation
- **Session Four:** Take it to the Next Level with High-Performance Software
- **Session Five:** High-Performance Town Workshops
- **Session Six:** Carbon Monoxide & Combustion

NCI 2021 Summit Events will also include a new member meeting, a welcome reception sponsored by Goodman Manufacturing, and a Summit Idea Meeting.

### About the Idea Meeting:

A special event for Summit 2021 attendees, the Idea Meeting is for HVACR contractors only. They can share their ideas for cash prizes. All contractors are invited to attend this two-part event where, each participant can propose one or more ideas in the areas of lead generation and sales. The best ideas split the entry fee for great cash prizes.

NCI Partners also will stage several Educational Sessions that contain compelling content for attendees.

On Wednesday, September 1, the NCI Annual Awards Banquet will take place. The banquet Award Categories include: Three Contractors of the Year, David Debien Award, John Garofalo Implementation Excellence Award, Preferred Partner Award, Scott Johnson Training Excellence Award, High-Performance Sales Excellence Award, and Chairman’s Award.

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cians are all about their ability to solve problems. It's what makes most techs tick, and why they chose this career path. Training allows them to continue to grow as the go-to problem-solvers for their customers. Most technicians also display their certifications with great pride, and see them as an important way to increase their marketable skills and value."

### NCI AND NATE

NCI and NATE go way back, Guarino explains. He notes that NCI has been working with NATE for more than two decades: "I was personally involved in the founding of NATE and helped to write some of its certification exams. I strongly supported the organization during my tenure as chief editor of *Contracting Business* magazine in the mid-nineties."

The training programs of the two organizations mesh well together. "Virtually all of NCI's courses qualify for NATE recertification CEUs. We recommend NATE-related training to all of our students as solid foundational training all technicians should have under their belts," Guarino says.

Since NCI mainly teaches advanced courses, it currently doesn't offer specific modules aimed at NATE first-time certification. "However, many of the fundamentals of airflow and combustion in NCI training help technicians gain a deeper understanding of airflow, BTU delivery, and combustion safety that serve them well when taking NATE exams," Guarino explains.

NCI training is held across North America, typically at distributor locations. NCI distributor-partners host the training and help fill the classes. NCI also has an extensive customer care team that helps to promote classes and maintain relationships with its contractor customers and members.



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Due to the COVID-19 pandemic, NCI's online certification training has represented the majority of its classes since April 2020. Certification exams are scheduled and proctored after the training through NCI's third-party online portal. NCI reopened in-person training in July at its training centers in Cleveland and Southern California. Plans call for reopening in-person classes with NCI's distribution partners starting in August. The reopening process covers more than 40 locations across the U.S., with training running through December 2021. Certification exams are given at these locations immediately following each class.

Certification (from NCI and NATE) is crucial to both contractors and customers. "Contractors value certification as it establishes third-party credibility with their customers. The training that leads to the certifications is perhaps even more important as our techs are dealing with increasingly complex systems. Beyond that, certification training is an important employee recruiting and retention tool," Guarino says.

HVACR techs wear their NCI and NATE certification stripes proudly. "Ongoing training and achievement improves both technical competency and employee morale. Well-trained field people demonstrably increase customer confidence, satisfaction, and retention. Training is perhaps one of the most important things a contractor can do to assure future growth and success for the organization," Guarino adds. ●

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

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# IAQ is Part of RSES Training

RSES IS COMMITTED TO IMPROVING IAQ THROUGH BETTER TRAINING OF TECHNICIANS.



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As the indoor air quality (IAQ) provided by HVACR systems becomes more important in the eyes of contractors and customers, the race is on to train technicians in this area. Refrigeration Service Engineers Society (RSES), Mount Prospect, Illinois, is one association that is committed to improving IAQ through better training of technicians.

RSES is an EPA 608 Refrigerant Handling training/testing provider, and one of the first in the nation to offer a refrigerant handling certification, which lent to the version that the EPA adopted as its own. The association also is a testing organization for NATE exams.

RSES offers training and certification opportunities in areas such as Hydrocarbon Refrigerants, Low GWP/A2L Refrigerants, R-410A Certification, Controls, Heating, Heat Pump, Safety, HVACR Apprenticeship, and Technical Institute/CM Prep. In addition, the association publishes comprehensive industry training and reference materials.

RSES, one of NATE's training providers and testing partners, has developed numerous training courses. RSES has many of these courses registered with NATE for technician continuing education hours. Technicians can take these courses for their recertification.

Many RSES training courses and seminars have continuing education units (CEUs) available. CEUs are issued to individuals who participate in an instructor-led course or complete an RSES eLearning training module or course online, according to Lori Schiavo, RSES executive vice president.

"NATE also has recognized a number of RSES training manuals, online training modules and courses, and seminars. As a result, individuals who successfully complete one or more of the NATE-recognized RSES training and educational offerings will receive CEUs toward renewing their NATE certification," Schiavo says.

## INDOOR AIR QUALITY

RSES includes IAQ principles in its Refrigeration and Air Conditioning course and on the final exam. A certificate is issued upon successful completion of the exam. "Certification is issued with the successful completion of the Certified Member Specialist Examination. The goal of this program is to provide the highest quality HVACR education for the technician possible and to show that the technician has the knowledge to do the job right," says Roger Hensley, RSES Educational & Examining (E&E) Board chairman.

"Since the middle of the 1970s and as energy costs have continued to escalate, structures and building practices have been improved. This has been accomplished by adding

insulation and addressing and reducing infiltration into the structures. Some residential structures are now almost like vacuum bottles. Outside ventilation air that has been treated for cleanliness, temperature, and humidity has to be introduced into the HVACR equipment in order to maintain acceptable indoor air quality," Hensley explains.

RSES's "Fundamentals of Indoor Air Quality" report notes that 80% of IAQ-related problems could be remedied by improving the design or maintenance program of HVACR systems. The design of the HVACR air distribution system, including the fresh outside air intake, is where IAQ starts, that plus comfort conditions in the structure.

"Good maintenance practices are the key to good IAQ," notes Hensley. "The air handling equipment should be inspected on a regular basis to ensure that condensate drains are clear and coil drain pans are clean and not leaking. Technicians should be able to ensure that there is no presence of mold or mildew."

Professionally trained technicians can improve the IAQ of a building or facility by using their skills to find problems and resolve them before a situation with poor IAQ occurs. Technicians can accomplish this by following good maintenance procedures.

However, troubleshooting the many issues that may be related to proper IAQ requirements demands specialized IAQ testing equipment. "The typical

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HVACR technician does not have the equipment, not to mention the training, to determine if an issue is related to a particular product that may vary from a particulate to a gas to an odor,” says Nick Reggi, RSES E&E Board member and 2018–2020 international president. “The HVACR technician will basically provide the correct temperature, humidity levels, airflow needs and if required, minimum ventilation requirements. IAQ goes beyond these basic elements.”

At this time, RSES does not have an IAQ certification program. “The IAQ definition needs to be narrowed down into a particular standard or code requirement so that everyone has the same definition, expectations, and results,” Reggi adds.

## SERVING THE HVACR INDUSTRY

RSES was launched in 1933, an era when the small commercial and domestic refrigeration industry was in its infancy. At that time, the only training available was through the factory, and it typically lasted three or four weeks. Individuals who completed factory training were then considered “factory-trained experts.”

Most HVACR work was conducted by product dealers, distributors, or factory service departments, according to Schiavo. As more installations were completed, the need for independent service operators increased, and the need for collecting, distributing, and exchanging ideas and information became paramount. It was through the efforts of these independent service operators that RSES was born.

RSES training covers all aspects of HVACR, beginning with simple theory and extending to complex troubleshooting. Training can be conducted online through RSES eLearning, or through local chapters, company training facilities, schools, and self-study.

RSES also offers designated membership status exams, including the Active Specialized Member (SM), Certificate Member (CM), and Certificate Member Specialist (CMS) exams. These designations prove competency to employers and customers. RSES is opening up these credentials to nonmembers. In the future, individuals will become RSES members upon passing.

Testing has traditionally been done at RSES chapter locations, but it also is available at distributor and wholesaler facilities, manufacturer testing sites, and schools. Most of the exams are performed by an approved proctor, for which RSES has an application process. “Exam sessions are scheduled, and tests are ordered and sent to the proctors. Once complete, exams are submitted to RSES headquarters for grading. The results are recorded and sent to either the proctors or students, depending on preferences,” Schiavo explains.

## THE AIR DOCTORS’ INITIATIVE

RSES’s CM exam recently was selected as the “top out/journeyman credential” for Michigan-based Air Doctors Heating and Cooling’s four-year (8,000-hour) training program.

“It is exciting that Air Doctors decided to use the CM exam as its top out/journeyman credential,” says Mike Ralston, RSES international president. “Having taken the exam myself, I know that these journeymen will be highly educated members of the workforce. These technicians are the ones who will properly take care of their customers because they have the knowledge to do the job correctly.”

This initiative is significant, according to Brynn Cooksey, owner of Air Doctors Heating and Cooling. Cooksey also is director of RSES Regions 8 and 11 and a member of the E&E Board. “The CM exam is an industry-respected credential,” he says.

“Individuals possessing this status,” continues Cooksey, “have proven a high level of technical knowledge and experience. This benefits RSES by continuing its mission to achieve ‘better service through knowledge’ and by contributing to a skilled and competent workforce. Homeowners benefit by having the job done properly the first time, and the service tech is able to identify issues that the customer was unaware of.”

The partnership also will help attract more skilled technicians to the field, Cooksey says, which is important because fewer young people are entering the HVACR profession while many older technicians are retiring. “At Air Doctors, we were looking for a credential that was comprehensive and reflected the true nature of a service technician’s day-to-day operations. We found that the CM exam represented that.”

The rigorous nature of the CM exam, which covers 18 subject areas and has a 30% pass rate, was another important factor in Air Doctors’ decision. “The exam is quite comprehensive, and it requires practical application and experience to be successful,” Cooksey says. “The pass rate for the exam was 30%; however, the RSES E&E Board is revamping the questions and the breakdowns, so the pass rate will be updated after it has been released to the industry and analytics have been measured.”

The partnership between RSES and Air Doctors began in May 2021. “We are hoping for a long-term commitment to technical training and credentialing from RSES,” says Cooksey ●

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





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The mission of EEBC is to expand the energy marketplace for its member companies by advocating for programs that fund energy-efficiency upgrades of homes and commercial buildings, influencing policies, and providing information on current

market trends, thus creating opportunities for businesses to grow.

EEBC is a nonprofit 501(c)(6) with a board of directors representing different sectors of the energy-efficiency industry that services Colorado and the Southwest. Services are provided by the group's staff, attorneys, contracted consultants, and a combination of volunteer support from its board of directors and member companies. EEBC has professional anti-trust, conflict of interest, and client confidentiality protection policies.

## THE POWER OF COLLABORATION

EEBC began with a group of six companies that wanted to influence the Public Utilities Commission (PUC) to make changes to the Xcel Energy's Demand Side Management (DSM) Program incentives and measures, which are called rebates in the field, according to Patricia Rothwell, EEBC executive director.

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“EEBC COMPANIES DECIDED TO POOL THEIR MONEY AND RESOURCE TO SHARE IN THE LEGAL COST TO INTERVENE. EEBC MAKES INTERVENING EVERY TWO YEARS IN XCEL ENERGY’S LEGAL DOCKET AFFORDABLE FOR MANY COMPANIES, RANGING FROM SMALL CONTRACTORS TO LARGE MANUFACTURERS, ALLOWING THEM TO INTERVENE AND IMPROVE REBATES TO DELIVER IN THE FIELD AND FRONT LINES.”

– Patricia Rothwell, EEBC executive director

enough influence. When we began working as a group to promote our ideas, suggestions, and recommendations based on market development in the field, we were able to ensure that Xcel Energy’s DSM Programs were successful for Xcel’s energy-saving goals and easier and effective to deliver in the field.”

Another critical reason EEBC became a trade association is because Colorado is one of the few states that requires stakeholder companies to have an attorney to join in the legal settlement process as an intervener (participate) through independently owned utilities, such as Xcel Energy and Black Hills Energy.

“EEBC companies decided to pool their money and resource to share in the legal cost to intervene,” Rothwell says. “EEBC makes intervening every two years in Xcel Energy’s legal docket affordable for many companies, ranging from small contractors to large manufacturers, allowing them to intervene and improve rebates to deliver in the field and front lines.”

Founded in 2008, EEBC’s member

businesses include DSM implementation and evaluation experts, demand response companies, engineering and architecture firms, data analytics firms, contractors, financing experts, commercial energy service companies, workforce training entities, and manufacturers and distributors of energy-efficiency equipment.

The association facilitates industry collaboration between energy-efficiency businesses through networking opportunities and supports policies and programs that create sustainable jobs for long-term economic vitality and growth, as well as provide cost-effective energy while improving the environment and public health.

“EEBC is a statewide trade association of businesses representing the supply chain in the energy-efficiency industry with 75 companies and 300 individual members ranging from small independent businesses to mid-sized to large companies,” Rothwell says.

All members are in the construction/energy industries—contractors, distributors, and manufactures of

insulation, air sealing, HVACR and heat pumps, DSM implementers, electrical, financing, and engineering. These members provide products and services with both gas and electric technologies in buildings across Colorado.

“All members successfully install high-performance technologies in all industries, but specifically for HVACR and heat pump technologies, using energy efficiency and emerging strategic (beneficial) electrification incentives in those projects. These businesses utilize and benefit from utility rebates—incentives and measurements—in utility programs,” Rothwell adds.

EEBC does not fund energy-efficiency projects. Instead, the association provides a platform for its members so they have the resources to fund or get hired for projects. “Many of our members are experts in energy-efficiency advisement and implementation. Many are the first adopters and have pioneered these technologies in the field for years. One contractor has 30 years of experience in this area.”

EEBC does not provide rebates to energy-saving businesses and consumers. However, the association facilitates opportunities for its members to provide rebates to their customers, both businesses and consumers.

In short, EEBC keeps members apprised and ahead of energy-transition trending, resources, and funding opportunities, and gives them a voice in legislation that will create an environment that is more conducive to business success.

Through these efforts, the association is able to improve the environment and public health. One of the most important outcomes from energy-efficiency building strategies and mechanicals is improving indoor air quality and comfort in residential home and commercial buildings. This is accomplished through its members.

## THE NATE CONNECTION

EEBC's relationship with NATE over the years has helped to improve the quality of HVACR technicians in Colorado, according to Lauren Poole, past/emeritus executive director of EEBC, and currently manager of sustainability at the Colorado School of Mines.

"EEBC's relationship with NATE is one of mutual advocacy that began many years ago," Poole says. "EEBC advocates for utility DSM programs that include utility rebates for the installation of energy-efficient HVACR systems and heat pumps. If these systems are not installed correctly, they won't work correctly.

"As part of EEBC's advocacy for DSM programs, it recommends to PUC that public utilities in Colorado use contractors that are NATE-certified to install energy-efficient HVACR systems and heat pumps so that customers can get the greatest energy, cost savings, and comfort from their systems. In the past, this included having utilities serve as a proctor for NATE testing of contractors participating in their programs."

Xcel Energy's "2021/2022 Demand Side Management Plan: Electric and Natural Gas Public Service Company of Colorado" report, released on March 16, 2021, notes that trade partner companies interested in performing certain types of equipment installations must have one technician in each certification area in which they are participating. This includes NATE certification in Air Conditioning or Air-to-Air Heat Pump. Service or installation certification is accepted.

To be eligible for Standard AC or Air Source Heat Pump (ASHP) equipment with Quality Installation (QI) or High-Efficiency AC/ASHP equipment with QI rebates:

- The customer must use a registered contractor with a

NATE-certified technician for the installation of the new system and who annually pass required online classes. These contractors have agreed to the terms of the product and meet the requirements related to quality installation practices. A list of registered contractors can be found on the Xcel Energy website.

- The technician's NATE certification can be used by one contractor company only, for the purpose of qualifying the company to offer these rebates. If the technician's NATE certification is in ASHP, the technician's company meets the AC NATE certification requirement automatically.

## NEW COLORADO INITIATIVE

Colorado Governor Jared Polis recently signed SB21-246 into law, making his state the first in the nation to pass an electrification policy with support from organized labor. The Colorado BlueGreen Alliance-backed legislation is expected to help Coloradans upgrade to efficient electric appliances, furnaces, and water heaters that keep their bills low and the air clean.

"Colorado has done a great job setting up tools for building owners to make their homes and businesses more efficient and climate-friendly," says BlueGreen Alliance Director of Colorado and State Economic Transition Policy Chris Markuson.

"The Colorado Property Assessed Clean Energy (C-PACE) program, which allows homeowners to finance energy efficiency and renewable energy improvements, is another great example of our state making it easy to upgrade. This bill will make efficient electric appliances even more affordable and help households and businesses connect with local qualified contractors to get the job done."

Rothwell of EEBC sees more use of heat pumps throughout the state, which will help to achieve energy-efficiency goals. The conversion from gas water heaters to high-efficiency heat pump water heaters is happening, albeit rather slowly.

"Heat pumps today represent a tiny fraction of replacement heating systems. The challenges of educating both contractors and consumers are enormous. Government and utility programs can help unlock the growth of the market," EEBC reports in its "New Colorado Policies to Advance Building Electrification and Energy Efficiency Will Boost Jobs Statewide" analysis, released in May 2021.

Abram Conder, co-owner of Pueblo's Flow Right Plumbing Heating and Cooling, which serves southern Colorado, has experienced how much utility programs like those enabled by SB21-246 can help. His electric co-op utility recently started offering incentives to help customers finance high-efficiency systems, including heat pumps.

"It helps streamline the process and homeowners can do more," Conder explains. "Customers often can cut their monthly payments for loans on high-efficiency home improvements to roughly what they are paying in utility bills. It's a win-win for the customer. If you do solar, and then insulate your house and put in a heat pump, you are going to be heating and cooling your house for almost nothing."

Conder, who sells about 20 residential ducted heat pump systems and hundreds of ductless mini-split systems a year, notes that more education is needed to meet the potential of this technology. "You're talking about 99% of the market for potential growth," he says. "Every home has the potential for heat pump electrification." ●

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



# Spotlight On NATE Technicians

**T**here are many traits that describe great leaders. A great leader is ambitious, has vision, and is resourceful. Great leaders are well-educated and know that in order to be successful in a career, the learning process never ends.

In the HVACR industry, technicians continue the education process by gaining NATE certifications. The *NATE Magazine* would like to put the spotlight on the following NATE-certified technicians who are leaders in the HVACR industry.



## GREG GARDNER

**1. TITLE/EMPLOYER:** Owner, Gardner Heating and Air in Georgetown, Kentucky

**2. LOCATION YOU SERVE:** I serve the Bluegrass area of Kentucky and beyond.

**3. WHAT DO YOU DO (AS A TECHNICIAN) ON A DAILY BASIS?** I service and repair HVACR systems. I also do system change outs and new construction HVACR installations.

**4. HOW MANY YEARS HAVE YOU BEEN WORKING IN THE HVACR INDUSTRY?** I have 32 years of experience; I started in July of 1989.

**5. WHAT LED YOU TO A CAREER IN HVACR?** HVACR was literally the only job I could find that paid more than minimum wage as a just turned 16 year old, and it went from there. I enjoyed working on HVACR equipment and wanted to learn as much as I could.

**6. WHAT NATE CERTIFICATIONS DO YOU CURRENTLY HAVE? WHEN DID YOU GET THOSE CERTIFICATIONS?** My NATE certifications are Air Conditioning Installation and Service, Air to Air Heat Pump Installation and Service along with Gas Heating Installation and Service. I received those certifications in 2009.

**7. WHAT VALUE DO YOU FEEL THAT THE NATE CERTIFICATIONS HAVE ON YOUR CAREER IN HVACR?** I value NATE certifications for several reasons. Some distributors will only sell certain high-end inverter equipment to NATE-certified owners/technicians. I have had quite a few homeowners ask if I was NATE-certified because they knew what experience and education I needed to obtain it. I also value it because it is a nationally recognized certification that many people know about. It shows that you have the skill and knowledge to obtain the certification.

**8. WHAT ADVICE WOULD YOU GIVE A NEWCOMER LOOKING TO BE SUCCESSFUL IN THE HVACR INDUSTRY?** I would advise a newcomer to always listen to the "old guys." Be teachable and willing to learn. Pick up the certifications. Study, read the books, and learn the new technology because it is always changing. Treat people fairly and ask the questions that need to be asked. Don't assume anything.

**9. DO YOU HAVE ANY FUNNY/INTERESTING SERVICE CALL STORIES YOU'D LIKE TO SHARE?** I have lots of stories from the last 32 years...some really funny...some really scary...some with great people. One stands out: I went to a home that we had done as a new construction house in a remote area. It was time to fire up the gas heating because the propane tank had just been set, hooked up, and filled. It was a gas-electric package unit on a second story roof.

It was a Friday afternoon...last job of the day. I set up an extension ladder and got on the roof with my tools, manometer, etc., to fire up and test the system. It was cold and very windy. As I was setting the outlet gas pressure and making adjustments, the wind blew my extension ladder over! (Been carrying a bungee cord or rope to secure the ladder ever since.) I was stuck on the roof...nobody around for miles...cell phone in the truck. Then it started to snow.

I pulled the horizontal discharge door off to keep warm after I had the system dialed in. I lucked out when the builder came back after I had spent about three hours on the roof. He had forgotten something at the job and had come back to get it. Thank God because I was beginning to consider jumping off the roof!! (I was much lighter and younger then.) ●



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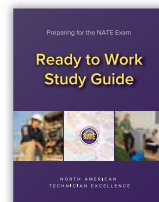
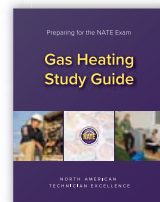
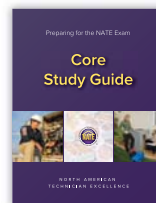
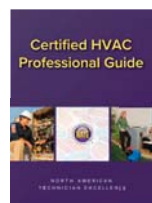
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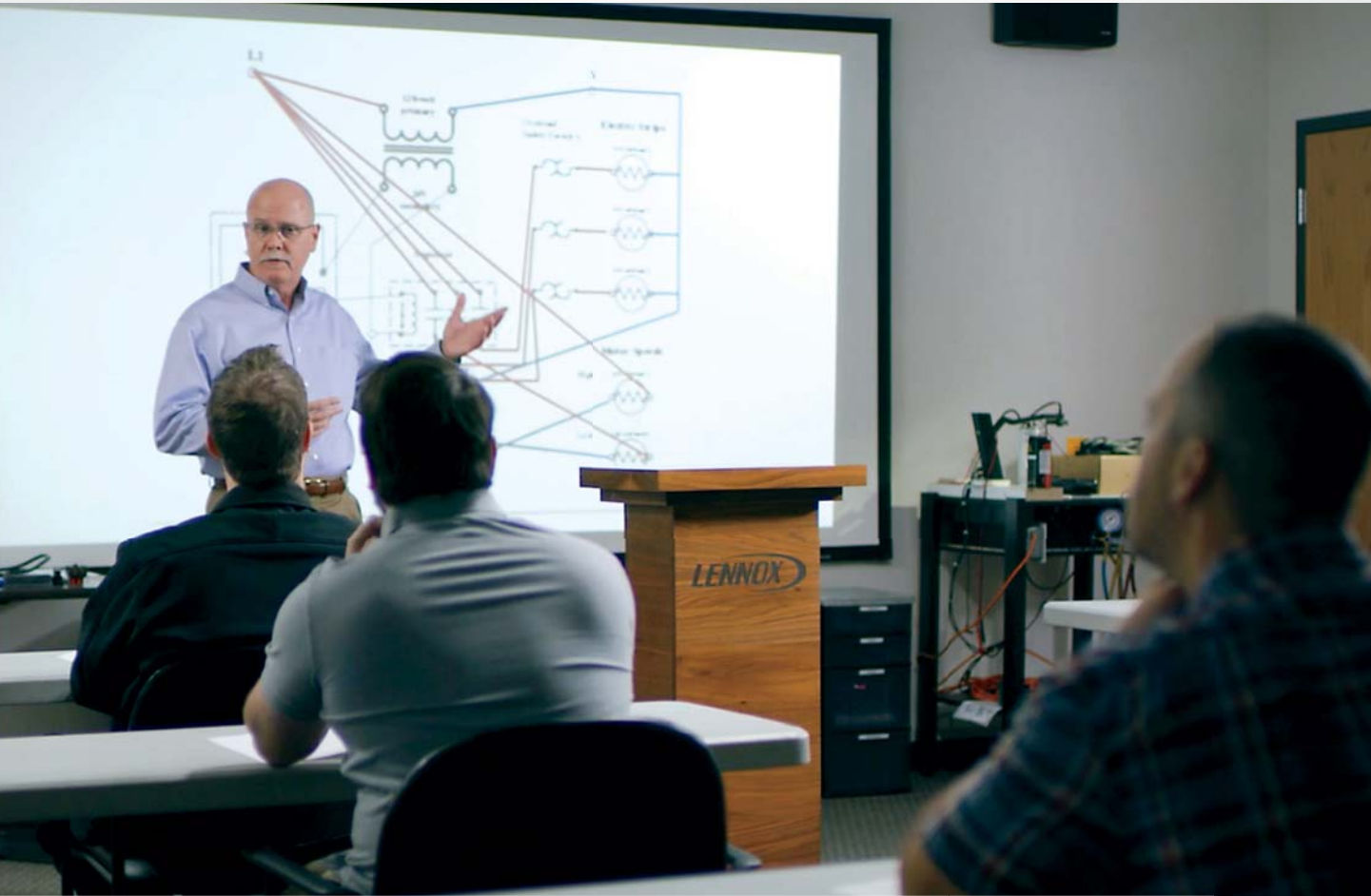
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