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TO...

## OUTPERFORM!

### in ASHEVILLE, NC

September 10 - 13, 2024

#### ALSO IN THIS ISSUE:

- CO Safety: Tales from the Basement
- System Renovations from Start to Finish
- What Do You Know About CO "Leaks?"



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# HIGH-PERFORMANCE HVAC TODAY™

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## OUTPERFORM!

# Outperform Competitors:

## *Learn and Differentiate to Succeed*



**Mike Weil** is editor-in-chief and director of communications and publications at National Comfort Institute, Inc. Contact him at [nci.link.com/ContactMe](https://nci.link.com/ContactMe).

**O**utperforming your competitors is usually the key to success, but it's also the biggest challenge you'll face as a High-Performance HVAC™ contractor. As you hunt for new opportunities, maybe new markets, and new ways of producing higher quality services, remember that your competitors are doing the same.

How can you possibly get ahead, especially if your competition is selling based on price? One way is to employ the High-Performance HVAC approach and look for ways to view customer systems from a different angle — taking into account airflow, combustion, and the impact of the entire structure on comfort.

That is really what the [2024 NCI High-Performance HVAC Summit](#) is all about. The entire program centers around all the changes happening from electrification, new heat pump and inverter technology, refrigerant changes, and new efficiency standards.

These are just a few of the challenges and opportunities in front of us. From learning to be prepared and proactive, to educating your team, Summit offers ways to meet these new opportunities head-on.

This year's attendees will explore ways to outperform their competition, delight customers, and lead their marketplace as they set priorities for 2025 and beyond.

In a recent [Forbes](#) magazine article on outperforming, the writer says the keys to outperforming competitors are simple but not easy.

In essence, the article says to focus on building a cohesive and loyal team who is excited about what your brand does, stays humble, asks for advice, and keeps an ear to the ground for untapped opportunities.

Training is central to outperforming in your

markets. Whether that training is business based, technically oriented, marketing focused, or all of the above, it's the answer to not knowing what you don't know.

You don't have to believe me. Check out the incredible story of [Chuck Worley and Worley Home Services on page 6](#) of this issue.

His story of success, failure, and getting back on the horse (as he says), is based on his mission to outperform his competitors, to out-work them, and to provide services backed by his own and his company's integrity, character, and willingness to always do the right thing.

By learning about and finding ways to differentiate, he built a successful business and now gives back to his community and to the industry by teaching others.

Chuck will be a presenter at this year's Summit, and will share his experience on the importance of clear and simple customer communications.

Plus, Summit offers even more for you and your team. From vendor sessions on learning how to use the latest testing and measuring tools and instruments, to the benefits of understanding the science behind filtration, and more, will set the stage for your on-going High-Performance HVAC success.

The opportunities continue during this year's breakouts; sessions will focus on everything from building a performance culture in your business to high-performance sales, combustion testing, the relationship between building science and HVAC, proper heat pump system design, and more.

Learning and having the right attitude, according to the [Forbes](#) article, plus building a culture of trust are the secrets behind outperforming.

Trust me on this. Join us in Asheville, NC, September 10-13 and you will see for yourself. 



## TruTech Tools to Showcase Test Instruments at NCI Summit 2024

**TruTech Tools** is excited to showcase some of their top HVAC tools and test equipment at **Summit 2024 in Asheville, NC**. They are shining a spotlight on the ecosystem and benefits of digital tools.

Digital tools offer more than just impressive reports for your customers. They provide highly accurate readings, reducing the margin for error and improving overall efficiency.

With features like data logging and wireless connectivity, these tools allow technicians to easily track, analyze, and share information. Integrating digital tools leads to faster diagnostics and repairs, minimizing downtime, increasing

customer satisfaction, and promoting better energy management. The latter helps cut costs for your customers.



Many instrument manufacturers provide mobile apps for their tools, or software like **measureQuick**, which integrates data from various wireless tools for easy analysis.

High-Performance HVAC™ Contractors

are central to the mission at TruTech Tools. The company believes in providing these professionals with the best tools to help them maintain high standards of service and efficiency.

By focusing on quality and innovation, TruTech aims to support contractors in delivering excellent results to their customers.

If you're new to TruTech Tools, there's something important to know; they're more than just a distributor. They partner in your success by offering comprehensive product training, exceptional customer support, and deep industry knowledge to ensure you have everything you need to excel.

Come visit them at **Summit 2024** and see how they can help elevate your tool line up and grow your business. **NCI**

## Combustion Analyzers Specifically for High-Performance HVAC Contractors

**Sauermann Group** will be showcasing the two combustion analyzers that are currently used by National Comfort Institute (NCI) in their combustion and CO classes. They are the **Si-CA 030** and the **Si-CA 130** combustion gas analyzers.

NCI picked these instruments because they function according to the specifications NCI requires and also aid in the way that the instructors train. These NCI "kits" can be purchased through TruTech Tools.

Sauermann designed their combustion analyzers with the sole purpose of catering to High-Performance HVAC™ contractors. These type of contractors are out there doing it the right way. Their primary focus is to bring comfort and safety at an investment where price intersects the value. Sauermann likens

them to technicians in class who broke the grade curve because they did so well. They are the ones with the greatest skill set, invest in training, invest in the best tools, and know that they will not participate in a race to the bottom.

Sauermann says we should alter our paradigm and think of how we can educate consumers on why they should choose a high-performance contractor.

There is still work to be done but we are the select group of like-minded souls to roll up their sleeves and get to work.

Sauermann takes their ethos, "*Designed by Techs for Techs*" very seriously.



They say they are focused on the end user and marrying those needs with technology — while making sure our products exceed industry standards.

Please stop by Sauermann's booth at **NCI's Summit 2024**, in Asheville, NC, September 10-13, to learn more about their products and how they can help you better help your customers. **NCI**

# Worley Home Services: Success Doesn't Come Easy

**W**hen you hear the name Yorktown, Virginia, it usually evokes images of the birth of our nation. Yorktown is the site where the end of the American Revolutionary War began with British General Charles Cornwallis surrendering to American General George Washington.

It is also home to [Worley's Home Services](#), an HVAC, plumbing, and electrical contracting firm born from struggle and revolution.

For Chuck Worley, the journey to success has been fraught with challenges, setbacks, and bad luck that might have derailed any entrepreneur looking to put a stake in the ground and build something they can be proud of.

He says that if it wasn't for the strong work ethic taught him by his parents, his willingness to out-work everyone around him, and his strong faith, he might not be where he is today.



Chase (left) and Chuck Worley

## SETTING THE STAGE

Worley will tell you that he was born into the construction trades. His father was a [Navy Seabee](#) who brought his work home, literally. By the time Chuck was 14, he had worked with his father to rebuild the family home to double its size.

Helping his dad install ductwork, running power wires throughout the house, and other projects became second nature for the young man.

Unfortunately, when it was time for Chuck to go to college, his parents didn't have the money to send him. Chuck's high school athleticism put him in line for recruitment to some schools, but his poor grades and low SAT scores limited his opportunities.

Ultimately, he ended up at [Norfolk State University](#). But school wasn't his thing and he failed out.

They say when one door closes, another opens up. For Chuck Worley, that was getting recruited to wrestle at an apprentice school at the [Newport News Shipyard](#).

"This changed my life," Worley says. "Many people don't know that the Newport News Shipyard has a Division II / Division III college. That is how I got into the trades. My training was in heating, ventilation, and air conditioning.

I began working in the maintenance department at the shipyard and was there six years. During that time, I got married and had a couple of kids.

When I graduated, the economy was tanking, and layoffs were rising. So, I started looking for other opportunities.

## DRESSING FOR SUCCESS

Worley began interviewing HVAC contracting companies for a service job.

"I went to those interviews wearing a tie and jacket," he explains. "How many guys walk into your office wearing ties and jackets? My mother taught me to dress for success.

"The contractor asked me if I planned to fix heat pumps dressed like that." I said, "No, sir. I was going to take my tie off first."

"The interviewer told me I missed my calling and need to be in sales."

This contractor talked Worley into going into sales, and he says that was the second opportunity that changed his life. Eventually, he joined another HVAC company that had five salespeople. By the end of four months, Chuck was the company's top salesman.

"I found my niche," Worley continues. Unfortunately, I found the team's integrity at this company to be wanting and says that is something I wouldn't tolerate."

## INTEGRITY IS EVERYTHING

"I kept running into that situation," Worley explains. I successfully sold state-of-the-art HVAC equipment in 1997. In fact, I was one of the first people to ever sell \$1 million in one year. I



was thriving. The problem was others in the company didn't have as high a bar as I did regarding character, integrity, and doing the right thing.

"The installers didn't care about any of those things. They cut corners, did poor work, and focused more on getting through the day. I couldn't tolerate it. I promised customers great outcomes, and the installers were carelessly installing units upside down and doing other things that ruined this equipment's ability to deliver comfort and made me look like a liar.

"In 2001, I got so fed up that I decided to start my own company. I had no money. I had no idea what I was doing. But I started running service calls, earned my [Master's card](#) for the State of Virginia, and focused on knocking on doors to sell my services.

"Behind everything I do, I hold myself and those who eventually work for me to the highest standard of integrity and character, and I am always doing the right thing."

### HITTING THE WALL

In his second year of business (2002), Chuck's company achieved more than \$800,000 in sales with a team of four or five people. Thirteen years later, he says he built that company into a \$2.1 million HVAC firm with his wife, who had an MBA and

was brilliant at managing the books and the business side. Chuck managed the sales and installation side.

Unfortunately, that didn't last. Chuck and his wife split up, and the divorce took four painful years. On top of this, Chuck lost his company due to a bad business decision. He had to file a Chapter 7 bankruptcy, leaving him \$500,000 in debt in 2014.

"This rocked my world. It sucked so badly. I wound up selling scrap metal for \$100 per week just to feed myself. I did go to work for several HVAC companies as a salesperson but could not make enough to pay off my colossal debt," Worley continues.

Meanwhile, his son, Chase, who was attending college in New Jersey, saw how badly his father suffered and suggested Chuck open a new HVAC company.

"That sounded awful," he says. "I couldn't bring myself to start worrying about payroll, taxes, and all the responsibilities. Chase said that he'd take care of all that stuff."

### WORLEY'S HOME SERVICES IS BORN

And he does. Chase transfers to Christopher Newport University, carrying 18 to 21 credits per semester. Meanwhile, Chuck bought a 10-year-old encapsulation (insulation)

company with a gross annual income of around \$300,000. He fired the three existing employees within two months because they weren't up to his integrity standard and hired a few people who did.

He explains, "It's very humid in Virginia, so encapsulations are popular. People want us to insulate the sidewalls under the floor and tighten crawl spaces."

By 2017, Worley's Home Services is a \$1.1 million company.

"My son ran the entire office while taking 18 to 21 college credits per semester. He is a monster at operations and finances – things I suck at.

"Meanwhile, I am selling like crazy. And we should finish up 2024 at between \$13 and \$14 million. Chase is 29 years old and runs a \$14 million company!"

Chuck explains that in the first five-years he used to run five to 10 calls a day. That included every sales call and every happy check after each installation. He inspected every job, took pictures, then sent the information back to Chase. Chuck sent his team back to fix anything that was not up to snuff.

"All of our work must meet our high standards. Period," he says. "This approach is something we implemented from the first day of our business, and the result is that our referral rate

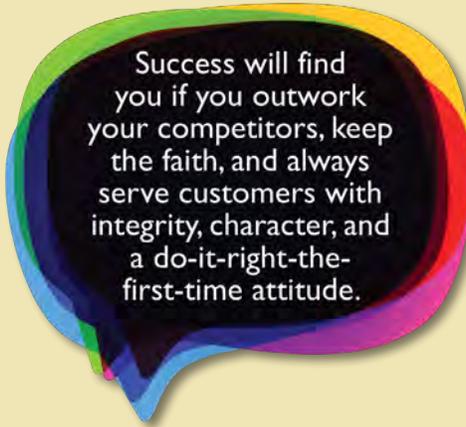
is unbelievable.”

Today, the company continues to do encapsulation work but focuses mainly on HVAC systems.

“I’m a building science geek. I look at the whole house as a system,” he says. “I sold everything that had to do with the building science of the house, including blower door testing. My average job in 2006 was \$15,000.

**GROWTH THROUGH ACQUISITIONS**

Worley says, “In 2021, near the end of the worst of the COVID Pandemic, we bought another \$300,000 company that had a great reputation but no internal processes or procedures. We implemented our systems, and by 2023, we hit \$12.2 million in sales.”



Success will find you if you outwork your competitors, keep the faith, and always serve customers with integrity, character, and a do-it-right-the-first-time attitude.

Worley Home Services employs 75 people today, fields 60 service and installation trucks, and focuses on residential service and replacement. The company does several other types of work as well, including the following:

- 80 to 85% of their revenues are residential
- 15 to 20% are commercial.

He says of the residential revenues:

- 55% comes from HVAC
- five to 10% from encapsulation
- 10% comes from electrical work
- 25% comes from plumbing.

Plumbing is one of the latest areas the company has ventured into. Worley says one of his technicians did plumbing work part-time. It wasn’t until an acquaintance of Chuck’s told him about a plumbing company whose owner had passed away and asked Chuck to try and help the widow out.

“The widow asked me to buy the company, which I did. I helped her pay off all the trucks and some other debt and helped get her out of a financial hole.

“We did not take any employees because they didn’t pass my character/integrity test. I put my part-time plumber



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in charge, and now we have three additional people working in that business.

“Today, nearly three years later, we do around \$3 million in plumbing.”

Most importantly for Chuck Worley, this allowed him to do the one thing he never thought he could – go back and pay off the \$500,000 in debt he incurred when his first company went bankrupt.

“That is the best part of this story,” he says. “I paid all 70 of those creditors back. I knew that was the right thing to do. How could I judge employees on character and integrity and doing the right thing if I didn’t practice what I preach?”

**AH-HA MOMENTS**

From the start of Worley’s career,



**Pictured above:** Worley Home Service technicians attending training. Worley says training, especially NCI training, is “life-changing.”

keeping himself educated was important. Though the college experience was a bust for him, he stayed on top of the HVAC Industry, the technology, and the changes continuously coming down the pike by reading, attending training, networking, and working with trade groups and associations to help better the industry.

“I learned about the National Comfort Institute (NCI) by reading *Contracting Business* magazine and

thought they had a better approach to the technical side of the HVAC business. So I went to one of their early **HVAC Comfortech** shows, walked around the exhibits, and saw all these airflow hoods,” he explains.

“I had no idea what they were or how they worked. I knew about static pressure but had no idea what that had to do with air conditioning.”



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There, he met NCI President Rob “Doc” Falke. When Rob explained to him how most systems in the U.S. had such poor performance, Chuck didn’t believe him. After all, he says he thought he was selling the highest-rated HVAC equipment of the time and promising customers the ultimate comfort.

“Now this Falke guy told me I wasn’t delivering on that promise! He said I was only delivering 50% of the capacity based on poorly sized ductwork and its impact on efficiency. I argued and argued, but Doc explained the math and made it so simple that I couldn’t argue with him anymore.

“I was heartbroken. I was screwing homeowners without realizing it. I was bound and determined to fix that. I began attending NCI classes. After meeting instructors like Al D’Ambola and Jim Davis, I understood and believed the science behind what they were teaching.

“In the end, this training was also life-changing. Though we have not fully implemented everything we are learning, we plan to do that eventually.”

Worley adds that they try to sell brand-new duct systems and do duct sealing and cleaning work. He says one of his 2024-2025 goals is implementing more duct renovation and air upgrade work.

As stated earlier, Worley Home Services has always been a company that practices building science in a service approach that considers the house a system. Chuck Worley says several techs understand the whole-house solution and airflow testing. Coupled with their NCI training, the mission is to implement performance testing and system optimization. He says they are



at the beginning of formalizing this.

### EDUCATING BEYOND EMPLOYEES

Today, Chuck isn’t focused on sales much anymore (he now has people who do that). He spends much of his time marketing, networking, and teaching about the importance of a systems approach and how to explain what that means – not only to his team but to customers and the community.

“I got onto a talk radio show to help answer questions for local homeowners,” he explains. “But it also serves another purpose. It helps our sales, marketing, and networking. I also attend every networking event in our area code. It’s all about meeting customers, talking to them about what we do, and how we can solve their comfort and energy problems.”

The radio show is called *757 House Whisperer*. It is targeted to the Worley’s operational area code and covers not just HVAC but electrical, plumbing, and encapsulation. He brings in co-hosts from roofing, pest control, and other industries. Together, they serve homeowners in the greater Virginia Beach/Williamsburg area.

He also gives back by helping high school kids see the trades as a college alternative. He teaches classes on why they should consider the trades. He points out the following key attributes of the HVAC, plumbing, and electrical trades:

- They can make good money
- They can have a great career
- They can help keep homeowners comfortable and safe.

And he continues educating himself.

“I am always looking for ways to learn more,” he says. “I will attend lunch-and-learn seminars at our local distributor or chamber of commerce, who often bring in experts.

“The secret is that you can never waste time getting educated. You will always pick up beneficial tidbits. Education is an opportunity. Combined with a strong work ethic, you will always find ways to grow and advance.

“When it comes to technical training, nobody does it like NCI. NCI has always been about data and ensuring that the system performs optimally. They teach contractors about doing the right thing making the system as energy efficient as possible. That fits in with my integrity, character, and doing things right the first-time philosophy.”

Success doesn’t come easy. But as Worley says, success will find you if you outwork your competitors, keep the faith, and always serve customers with integrity, character, and a do-it-right-the-first-time attitude.

For these and so many other reasons, *High-Performance HVAC Today* chose **Worley Home Services** to be their **September 2024 Contractor Spotlight**. Congratulations to Chuck Worley and his entire team. 

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# OUTPERFORM!

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**SCHEDULE OF EVENTS** - Get an overview of the events at this years Summit

## TUESDAY, SEPTEMBER 10

### Pre-Summit Events

- 8:00 a.m. - 5:00 p.m. Advanced Airflow Diagnostics - Recertification Class
- 8:00 a.m. - 5:00 p.m. Advanced CO and Combustion Diagnostics - Recertification Class
- 5:15 - 5:45 p.m. Summit Orientation Meeting - All Welcome!
- 6:00 - 8:00 p.m. Welcome Reception Sponsored by Daikin Comfort Technologies 

## WEDNESDAY, SEPTEMBER 11

- 7:00 - 8:50 a.m. Breakfast and Opening Session
- 9:10 - 10:20 a.m. Breakout Sessions 1 - Workshops
- 10:50 a.m. - 12:00 p.m. Breakout Sessions 2 - Workshops
- 12:00 - 12:45 p.m. Luncheon and General Session
- 12:45 - 1:25 p.m. General Session - Keynote: Bryan Orr
- 1:40 - 2:50 p.m. Breakout Sessions 3 - Workshops
- 3:20 - 5:00 p.m. Idea Exchange Meeting - Optional - \$20 cash entry fee - contractors only
- 6:00 - 8:00 p.m. NCI Partner Trade Show Reception

## THURSDAY, SEPTEMBER 12

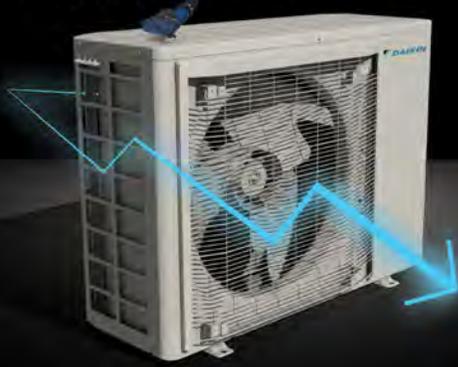
- 8:00 - 8:50 a.m. Breakfast and General Session
- 8:50 - 9:30 a.m. State of High-Performance HVAC - *NCI President and CEO, Dominick Guarino*
- 9:40 - 10:40 a.m. NCI Partners Educational Sessions
- 10:50 a.m. - 12:00 p.m. Breakout Sessions 4 - Workshops
- 12:00 - 2:00 p.m. NCI Partners Tradeshow and Luncheon
- 2:00 - 3:10 p.m. Breakout Sessions 5 - Workshops
- 3:20 - 4:30 p.m. Breakout Sessions 6 - Workshops
- 6:00 - 7:00 p.m. Sponsor Appreciation Cocktail Reception
- 7:00 - 9:00 p.m. Awards Banquet and Presentation Ceremony

## FRIDAY, SEPTEMBER 13

- 8:00 - 8:45 a.m. Breakfast, General Session and Prize Drawing
- 8:45 - 10:00 a.m. Panel Discussion
- 10:10 - 11:20 a.m. Breakout Session 7 - Workshops
- 11:30 a.m. - 12:30 p.m. Closing Luncheon - *NCI President and CEO, Dominick Guarino*



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*September Spotlight:*



# Sixteen

## High-Efficiency MERV 16 Media Air Cleaner



# What Do You Know About Carbon Monoxide “Leaks?”

**M**ost general interest newspaper or magazine articles about carbon monoxide (CO) will mention “CO leaks” as the cause of CO poisoning. These newspaper and magazine stories imply the venting system always has dangerous CO levels. The reporters assume it’s only when these gases “leak” out that someone gets sick or worse.

Most of the public and many in our industry buy into this myth. However, it couldn’t be further from the truth.

Don’t get me wrong, maintaining acceptable CO levels in flue gases is necessary, but our

industry rarely measures them. When was the last time a code official asked you to test flue gas CO levels in a system you installed? A tougher question might be, **when did you last measure** flue gas CO levels in a system you installed?

Let’s look at what you should know when you hear about a “CO leak.” Then, we will discuss how you can protect your customers.

## WHAT IS A CO LEAK?

The phrase “CO leak” is a misinterpretation of what’s happening during equipment operation. **CO spills, it doesn’t leak**, and it’s never acceptable when CO spillage happens. In fact, spillage indicates improper flue gas venting and unsafe equipment operation.

Since CO can spill from equipment, why hasn’t there been more of an outcry to stop it, put safeties in place for prevention, and improve awareness? Instead, we tolerate situations that could put you and your customers in unsafe conditions.

## HOW DOES CO SPILL?

There are multiple locations where flue gases can spill from vented equipment. These locations include drafthoods on natural draft equipment, burner inlets, chimneys, and building openings.

It’s important to note that flue gases and room air can move into or out of these openings. They act as two-way streets for flow.

Draft pressure is the force that determines the direction of flow. Uncontrolled draft can contribute to CO spilling from a venting system and any connected equipment. Low or excessive draft creates competition for airflow that causes **carbon dioxide (CO<sub>2</sub>)** to build up in the burner compartment. CO<sub>2</sub> is a heavier gas and one of the main byproducts of combustion. It starves

Would a rip in the flue allow CO to “leak” into a building? What if the flue gases never reached this opening or measured 10 PPM on a combustion analyzer?



equipment for combustion air as it builds up internally.

This CO<sub>2</sub> build up is often the cause of what's often misinterpreted as a CO leak. The equipment operates improperly when this condition exists, and it remains hidden if you test for it using current industry protocols. Two of those common protocols are:

- A single CO test in the equipment's flue gas after 10 minutes of operation
- Use chemical smoke at the base of a draft hood.

### DISCOVERING CO SPILLAGE

Are you aware that there are often visual signs indicating spillage is happening? Look for the following clues.

1. Melted water pipe grommets or electrical wiring
2. Rust around draft hoods
3. Rust in the burner compartment
4. Burner compartment discoloration.

The only way to verify if spillage is happening is to take multiple CO measurements in the flue gas while the equipment operates. Stable CO readings below 100 parts-per-million (PPM) indicate the equipment is venting correctly. Rising CO readings during the run cycle indicate flue gas is spilling.

In the example at the top of the page, the CO measurement remains stable as the equipment continues to operate over 12 minutes. The CO readings stay below 100 PPM and are stable. In the above example, the equipment is venting properly.

In the second example on the top right of this page, the CO measurement continues to climb and doesn't stabilize. This pattern shows an appliance spills flue gas and is unsafe to operate. CO levels will continue to climb until the equipment cycles off.

### EXAMPLE OF PROPERLY OPERATING EQUIPMENT

2 minutes	4 minutes	6 minutes	8 minutes	10 minutes	12 minutes
30 PPM	30 PPM				

### EXAMPLE OF EQUIPMENT SPILLING CO

2 minutes	4 minutes	6 minutes	8 minutes	10 minutes	12 minutes
20 PPM	40 PPM	70 PPM	100 PPM	140 PPM	200 PPM

**If you focus only on the equipment to solve CO spillage, you may be looking in the wrong location.**

If it operates long enough, CO levels will rise so high that a combustion analyzer won't be able to display the reading. A traditional test will miss this safety issue.

### THE SOLUTION

You can only find the cause of spillage through proper testing, equipment monitoring, and using fewer assumptions. A properly designed and operating system shouldn't spill CO. If it does, the built-in safeties should turn the equipment off so it doesn't endanger anyone.

If you focus only on the equipment to solve CO spillage, you may be looking in the wrong location.

Many causes of CO spillage have nothing to do with the equipment. Instead, they have everything to do with the equipment's environment.

External influences such as exhaust fans, duct leakage, airflow imbalances, and building pressures often interfere with proper draft and cause spillage through an interaction known as back-drafting. A firm understanding

of building science and diagnostics is priceless when diagnosing back-drafting issues.

Here's an idea: offer low-level CO monitors to your customers instead of over-the-counter CO alarms. Many believe store-bought CO alarms provide the same protection as low-level CO monitors. They don't.

Your customers deserve a device that prevents exposure to excessive CO levels before they alarm. Why not equip them with a safeguard that lets them know they are at risk before harmful levels build up?

Unfortunately, some contractors will continue to use the "CO leak" as an excuse for their lack of understanding and troubleshooting skills.

Don't be that person. Instead, move past the excuses and find out the actual reasons. We can improve our industry and our customers' safety with proven solutions that prevent CO poisonings from ever being a news story again. 



**David Richardson** serves the HVAC industry as Vice President of Training for the National Comfort Institute, Inc. (NCI). NCI specializes in training focusing on improving, measuring, and verifying

HVAC and building performance. If you have questions about this article, contact him at [ncilink.com/ContactMe](https://ncilink.com/ContactMe).



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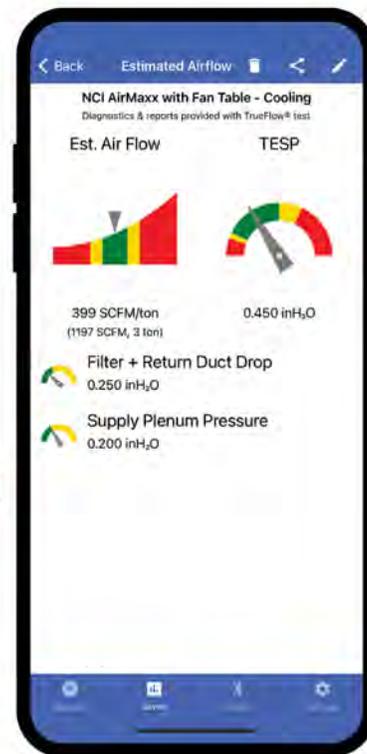


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# High-Performance HVAC™ System Renovations from Start to Finish

In the retrofit market, HVAC renovation is essential for customer comfort and system performance. Simply swapping equipment without understanding the entire system can be a recipe for disaster.

Before offering system replacements, you should use precision measuring tools and proven science to determine what is happening in the home. Guidance through the [ACCA \(Air Conditioning Contractors of America\)](#) design series of manuals will help you deliver exceptional results for clients and reduce nuisance warranty issues.

## FOCUS ON COMFORT

In general, most HVAC contractors and technicians too often focus on the box, the job, or the time. Instead, we should be focusing on delivering unmatched comfort and client experiences.

Instead of swapping out HVAC equipment, we have the opportunity to right the wrongs of the

past and give our clients something most have never truly experienced: **Comfort.**

## UNDERSTANDING THE BASICS

The HVAC renovation process begins when you accept your client's call. Besides setting the tone and expectations for what's to come, this introduction can reveal many pain points the clients may have.

Take notes on what is said — these provide tiny nuggets that will pay back 10x more later in the process. Do they need a quote, OR do they need a consultant?

Either way, your team needs the answers to the following basic questions BEFORE they arrive at the customer's home:

Before needing a new HVAC system, did the current one satisfy your needs?

- Do you have any uncomfortable rooms in your home?
- Is the humidity under control? Are you comfortable with the humidity levels in your home?
- Have you performed any home upgrades such as insulation, air sealing, door or window replacements since your last HVAC was installed? Did that help?
- How are your energy bills? Is efficiency a primary concern?

## COMMON CHALLENGES AND MISCONCEPTIONS

One common misconception is that your clients won't care about the deficiencies you may discover.

Another challenge is answering uncomfortable questions like *"I've used your company for years. Why hasn't anyone brought these concerns up till now?"*





They may also say, “*I have had three other companies here, and you’re the first to ask these questions or show any concerns about the XYZ problem – Why is that?*”

Scary stuff, right? You may have to eat crow and explain how, through continuing education, your company has come to understand more about the importance of airflow and its impact on comfort.

Continue your explanation by telling them that for a successful HVAC renovation, you must test existing conditions so the team can perform higher-level diagnostics. Such diagnostics assure the customer that you have done due diligence to deliver peak system performance.

### AIRFLOW IS A BIG DEAL

If we fail to test and consider the whole system – the equipment, the return and supply ductwork, AND the house itself – we’re likely to under-deliver on our clients’ expectations. All three ARE THE SYSTEM, and testing them all is crucial to success. Airflow is a big deal.

For example, Mrs. Jones (prospective client) wants a quote to replace her system and tells you how her primary suite is always uncomfortable. She then asks to include adding more ductwork or airflow in general.

Odds are someone else (competitor

or Google®) told her that adding another supply air drop or return air intake is all she needs.

It’s time to shine. Tell her you’d prefer to perform airflow tests first to find the real problem(s). Explain that you do not want her to waste money.



In almost every case, your client will agree.

### KNOWLEDGE IS VITAL

Here’s where understanding ACCA’s manuals J, S, D, & T can help.

- **Manual J** gives us what we need to determine how much heat is gained and lost throughout the building.
- **Manual S** guides us in selecting the equipment necessary to satisfy a building’s needs.
- **Manual D** provides us with the process of delivering the airflow necessary through our equipment to the rooms needing it.

- **Manual T**, often overlooked and small compared to the others, teaches how, where, and why we should be delivering the airflow to ensure our time spent doing all of the measurements and math does not go unnoticed.

### SOME EXAMPLES

Have you ever noticed people sitting in their chairs, loungers, couches, etc., with a blanket or sweater nearby?

**The reason is that the original HVAC System designer likely ignored Manual T.** When the HVAC system comes on, the homeowner is blasted with airflow from improperly chosen grilles/registers/diffusers (GRD), causing discomfort. That’s why they grab their blankets. When the equipment turns off, the blankets come off.

Ultimately, this discomfort can lead the homeowner to adjust the thermostat up or down.

By the way, blankets can also indicate inadequate mean radiant temperature control, often caused by improperly sized HVAC equipment. **Manual J helps to properly size equipment.**

But what happens if you size the system to Manual J requirements and it doesn’t work?

Let’s say the existing equipment satisfies the temperature in heating and

cooling mode. Let's also say there are no major comfort complaints EXCEPT that humidity in the home is often at 60% and may even drift to 65% or more.

**That would suggest the equipment does not meet Manual S guidelines** for system selection. Manual S looks at both **Latent and Sensible heat** to ensure the equipment chosen can closely match the needs of the home and occupants.

**MORE EXAMPLES**

Let's face it: not all three-ton equipment is the same. You can look at the same outdoor section of equipment with three separate "matches" and get three completely different performing pieces of equipment.

**Manual D-designed duct systems** and those who install them rarely get the respect they deserve. When properly designed and installed, the duct system is truly a work of "Blue Collar Art."

In many cases, duct systems become a lifetime part of the home and can be a leading cause of underperforming of high-performance equipment.

**GATHER THE INFORMATION FIRST**

So what do we do? First, gather important information from the home. Find out about the insulation, building materials, occupancy, the direction of the house, types and locations of supply register/grilles/diffusers, and what types of duct fittings and



materials were used.

Then, preferably using software, determine what the home and individual rooms require to satisfy the home and client's needs. This approach provides guidance moving forward to deliver repeatable results with client satisfaction.

Gathering information means bringing your tools, including the appropriate test instruments and measuring devices. Most customers will be impressed seeing your team (including your salespeople) testing the system with instruments.

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<p><b>Comfort</b></p> <p>Make sure that every room in your house is comfortable in summer, and that your HVAC system is operating at optimal efficiency.</p> <p>NCI-certified professionals are properly trained in both comfort issues and have used their own homes as laboratories. Along the way, you really learn their stuff.</p>	<p><b>Safety</b></p> <p>An address, vented gas system, installed by a trained technician is one very thing that you need to get right.</p> <p>Never attempt the dangers and risks your HVAC system professional can do to help reduce your risk. Be sure to hire about one who will, and the best US should only be installed through NCI-certified professionals. Read more.</p>
<p><b>Energy</b></p> <p>Have they been a historical "energy efficiency" or "green" in your home? The right HVAC system, and the right energy efficiency in the hands of an NCI-certified professional.</p> <p>Let us help you find the right HVAC system for your home. We'll help you find the right HVAC system for your home. We'll help you find the right HVAC system for your home.</p>	<p><b>Health</b></p> <p>The air that you breathe is one of the most important things in your home. It's also one of the most overlooked. Make sure you have the right HVAC system for your home. We'll help you find the right HVAC system for your home.</p>



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**EVALUATE, EVALUATE, EVALUATE**

It's not always about cool tools, either. Use your senses when evaluating a home. Never underestimate the value of the information the client will give you.

Ask permission to walk the entire house (start at the thermostat and turn the equipment on). Invite them to tag along and engage with them on different observations.

Look for spider webs and dust build-up on surfaces, doors, windows, etc. Do you feel air blowing on you as you make your way through areas? You don't have to say a word. Silence or knowing looks can spark the right amount of conversation, and the client will handle all the talking for both of you.

Also, look for things that signal discomfort, like blankets or throws on furniture, open or closed doors, and closed registers. Listen to see if the HVAC equipment sounds loud.

Your evaluation should also include cycling the HVAC equipment on and off. Go outside, capture nameplate information, and walk around outside the building looking for structural concerns that can impact comfort and system performance.

Then, re-enter the home and make sure all interior doors are open and all exterior doors are closed.

**TEST, TEST, TEST**

Now is the time to discover what effects – if any – the HVAC system has on the home. Let's start with a **blower door test**.

**1.** Place a probe from your precision manometer outside on the sheltered side of the home. You can slide a piece of tubing under a

door seal. You will be measuring the home (+) with reference to “WRT” (-) outside.

If it is windy, you may need to extend your time averaging or deploy other means of neutralizing the wind effects for your baseline reading. Don't forget to write this number down or snap a picture for your reports.

**2.** Next, turn on the HVAC system. Monitor the gauge to determine if any changes occurred. Did the pressure in the house go up? If so, you likely have significant return air duct leaks.

Did the pressure go down? That means there is likely significant supply air duct leakage. Record this new number (and take a picture) and disconnect from the hose going outside.

**3.** Next, close all internal doors. Connect a hose to your manometer and place the hose into the room. You will measure the room (+) WRT to the home (-). Record each reading, documenting which doors are closed. Take pictures and add notes to your photographs.

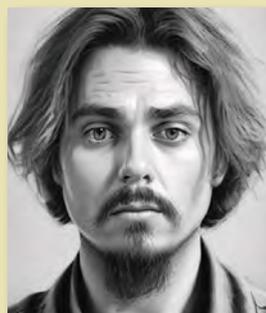
**4.** Finally, once all interior doors are closed, return to the hose you left outside and measure the home (+) WRT (-) outside one last time. Again, take a picture.

**5.** Measure the existing HVAC system's performance. You may want to run a **measureQuick®**

**Dustin Cole Presents at High-Performance HVAC Summit 2024**

This article is based on a presentation given by **Dustin Cole** at National Comfort Institute's 2024 High-Performance HVAC Summit in Asheville, NC.

This session is titled, "High-Performance HVAC Renovations from Start to Finish," and covers why and how HVAC professionals blend testing and diagnostics with ACCA Manuals J, S, D, and T to deliver High-Performing HVAC systems for consumer customers. Cole also covers



how such testing protects you from costly mistakes.

If you cannot attend this year's Summit, this article should give you the key highlights of what Dustin will share with those who are in attendance.

*Be sure to mark your calendars for the 2025 Summit, from September 9-12, 2025 in Austin, TX.*



report after using the **Digital Tru-Flow® grid** and **Joblink®** probes. However, you can also follow your existing practices by collecting this data. That may mean measuring enthalpy changes, Delta T, refrigerant measurements, using manufacturer static pressure worksheets, etc.

**6.** Visually inspect the HVAC system. You want to thoroughly walk through the duct system, noting duct materials, routing, sizes, insulation, etc. By the way, don't forget to take pictures.

**7.** Visually inspect the attic/crawl spaces. Do these meet minimum insulation requirements in your market area? Is the installed insulation consistent to provide thermal balances?

Does there appear to be air sealing in critical areas such as top/bottom plates? Better yet, can you tell if air sealing was performed in other often-overlooked places, such as framed corners, ceiling/light penetrations, and drywall/wall connections?

**WRAPPING IT UP**

Following the above process, you can confirm the heating/cooling capacity delivered. You should also have a reasonable understanding of system airflow performance/deficiencies and determine if insulation deficiencies or room pressurization issues are causing unbalanced room temperatures.

For many, understanding and implementing a *Home-As-A-System* ap-

proach will open eyes and minds to many missed opportunities and may answer some longstanding questions.

Remember, air is powerful, and our HVAC systems are arguably the most impactful on building envelope performance when it comes to induced leakage. **NCI**



**Dustin Cole** owns **Cole Air, Inc.**, Lake Charles, LA. The company opened for business in 1985 and provides complete heating and cooling services. Cole is a strong proponent of High-Performance

HVAC™ contracting and believes in continuous education, especially in HVACR & building performance work. He can be reached at [ncilink.com/ContactMe](http://ncilink.com/ContactMe).



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# Carbon Monoxide Safety: Tales from the Basement

**M**y journey toward understanding combustion efficiency and carbon monoxide (CO) safety began years ago when I first met [Jim Davis](#) before he joined the National Comfort Institute (NCI) team.

In those early days, society developed a strong focus on the CO issue because of some headline news stories about homeowners and their children who died from it. It seems to me that over the years, that emphasis has faded.

The issue has NOT gone away. It may be worse than ever. As an industry, we must press the importance of CO testing — not so much

remediation, but more on identifying sources.

That is the difference between now and then. As we've learned more about testing and measuring combustion and how CO spillage happens, we know that it is equally important to discover the actual sources of that spillage and then offer solutions that will keep customers safe.

## COMMON IGNORANCE PERVADES

In the early days, Jim Davis encountered much pushback from gas appliance manufacturers, distributors, and utilities. They didn't like anyone talking about combustion appliances being unsafe. Though that attitude today has changed, a lot of misunderstanding and misinformation is still prevalent.

**Let me be clear:** I fully support advancing technology. However I see one consequence of these advancements as contributing to taking away critical thinking skills required for proper diagnostics in the field.

I see more people paying more attention to getting refrigeration levels and airflow correct. These are all essential things, but nobody will die from not having the correct CFM coming out of a six-inch round duct run.

On the other hand, any combustion appliance touched by an HVAC contractor or plumber has all the ingredients for a significant catastrophe, including death.

So, how do we counter this common level of ignorance? The answer is better training and better tools.

This vintage poster (to the left), courtesy of the [Plumbing-Heating-Cooling Contractors of Massachusetts website](#), says it all. Shouldn't the HVAC trades also be considered a protector of the nation's health?





### CHANGING OUR OUTLOOK

In the combustion training classes I teach, it always amazes me how attendees become slack-jawed at how much they don't know or how much of what they thought they knew was wrong.

They often leave class fired up and ready to better the world, only to return to their companies, where the owners are more focused on selling boxes and don't support the techs in their bid to implement what they learned.

For example, I met a 19-year-old technician who was fresh out of high school and might have done some tech trade school. He paid his own way to my class. The company he works for wouldn't cover the costs. He took personal vacation time to attend.

Think about that. What do you suppose the chances are that this tech's company was open to support and use what this young man just learned? What are the chances that he will either leave that company or the

industry altogether?

As HVAC contractors, we must change our outlook. Otherwise, the current technician shortage will only grow, and the industry will lose the better, more motivated technicians we already have.

So we must provide the best training possible to technicians and then support them. We must be open to new ideas and embrace their desire to be craftsmen.

### TALES FROM THE BASEMENT

Here are some of the consequences of garbage in, garbage out information that I think is dumbing down the trade. They stem from what I discovered when I was an HVAC contractor. I call these my "Tales from the Basement" stories, highlighting situations I found left behind by the contractors who worked at a house before me.

For instance, during a clean-and-check service call on an oil-fired furnace, I noticed a light inside the combustion chamber when I pulled the burner gun out.

When I opened up the supply plenum on top of the furnace and looked down, I saw that the heat exchanger had rotted through. But the company I worked for had techs patch the heat exchanger with **furnace retort cement**.

## Mark Hunt Presents at High-Performance HVAC Summit 2024

This article is based on a presentation by **Mark Hunt** at National Comfort Institute's 2024 High-Performance HVAC Summit in Asheville, NC.



This session is titled, "How to Take Combustion Testing to the Next Level," and covers strategies for different situations, and what you can do to improve consistency among your team.

Mark plans to set the stage so you'll have a solid understanding of how to handle ambient CO (carbon monoxide) testing and red tagging to present the right combustion solutions to your customers.

If you cannot attend this year's Summit, this article should give you the key highlights of what Mark Hunt will share with those who are in attendance.

**Be sure to mark your calendars for the 2025 Summit, from September 9-12, 2025 in Austin, TX.**

This cement usually seals a breach around a flue pipe going into a masonry chimney. The techs before me were caking this cement at the top of the customer's heat exchanger to plug the hole. Furnace retort cement is not meant for that kind of heat. Excessive heat causes the cement to become brittle and flake off. The result: this furnace vented directly into the customer's home.

I refused to do the cleaning. The homeowner got upset and called my boss, who waved me off the job. He sent out someone else to put another bandage on the heat exchanger.

I didn't work for that company much longer because that practice endangers people. I wanted no part of that.

Stories like this drive my passion for

doing things right the first time. When any HVAC tech or plumber walks into a customer's home, they're the most critical contractors who will ever walk through those doors.

### HVAC CONTRACTORS SAVE LIVES

Every contractor who adjusts and services combustion appliances is responsible for keeping customers safe and enabling them to have a high quality of life. This statement is true for EVERY home they interact with. As High-Performance HVAC™ contractors, you and your team must understand and believe that.

One way to help your team believe that is to set up [Google News Alerts](#) for carbon monoxide poisoning. Every time a story hits the Internet with

carbon monoxide in the title, you'll receive a link to that story. You will be surprised how many alerts you'll receive. If that doesn't convince you and your team of just how important your work is, then nothing will.

One thing you'll see in common with these stories is that the media often reports a furnace or water heater caused the issue. However, through training and experience, you will learn this is not always the case.

Carbon monoxide is not confined to only furnaces, boilers, and water heaters. ANY gas-fired appliance, including stoves, gas fireplaces, power generators, cars in garages, and others can cause it.

Power generators are becoming one of the biggest causes of CO issues,



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especially after a significant weather event that knocks out power to homes. Consumers will buy gas-fired generators from the local big box store and ignore reading the safety instructions for that equipment. They often set up the generator in the basement or the garage. Then, people start to get sick. Worst case scenario, people die.

As HVAC contractors, this is why getting the proper training, like the [Combustion Performance and CO Safety](#) training that NCI provides, is essential. Such training will help you and your team understand all the different sources of CO.

Think about this: whether you like it or not, homeowners and the public consider you and your company to be the experts.

With that in mind, your technicians must become like [Sherlock Holmes](#). Detective work requires both physical and visual investigation. Here is the key: When you find unsafe conditions, tell the customer and explain why.

### FIRST RESPONDERS MOSTLY ARE NOT PROPERLY TRAINED

Homeowners who install CO detectors and monitors have no idea what to do when the alarm goes off. Typically, their first impulse is to call the fire department. In most cases, fire departments are NOT CO experts. They have little training to recognize that CO may be the problem.

Their first action is to condemn the usual suspects: furnaces, water heaters, and boilers.

Then there is the issue of what kind of CO alarm a homeowner should have. Most buy CO alarms from a big box or other hardware stores. But these alarms only detect CO at higher,

more dangerous concentrations in the home.

They don't know it's better to buy **low-level CO monitors**. And they don't know what to do when those monitors go off.

For example, last year I met a contractor who told a story about one of his customers who owned an [NSI 6000 low-level CO monitor](#). One day, that monitor went off, and the customer called the contractor. But they called the fire department first.

When the contractor arrived at the house, the fire department had already been there, telling the contractor that the furnace was the source of the carbon monoxide.

Here's the rest of the story, as Paul Harvey was so fond of saying. At the time of the alarm, it was August, and the outdoor temperature was 95°F.

The furnace wasn't running.

After visually investigating the scene and conducting tests, the contractor discovered the homeowner was canning vegetables all morning. She was boiling water on her stove, and enough carbon monoxide had built up to set off the low-level CO monitor.

The point is that by putting on their Sherlock Holmes hat, investigating visually, interviewing the customer, and properly testing, the contractor discovered the real source of the problem and could offer the homeowners advice on how to stay safe.

### PROTECTING THE HEALTH OF THE NATION

There was a time in this country when plumbers were viewed as equally important as lawyers or doctors. The motto of the plumbing industry was and still is "*Protecting the Health*

*of the Nation.*"

It was because their job was to prevent illness from sewer gas and other nasty things impacting water systems.

I think that the HVAC industry needs to pick up that model. **Plumbers and HVAC contractors are the first line of defense**. I don't care if you're just there to change the air filter on the furnace. You need to look around to see what's happening in the house. I would rather HVAC guys be the ounce of prevention rather than the pound of cure.

The fact is, once anyone from your company touches any HVAC equipment, you own it. You are responsible for it. You can make all the difference.

These are my tales from the basement. They are a sample of the state of our industry today. I think that High-Performance HVAC™ contractors can lead the charge to change things.

This fact is the key reason why it's so important technicians understand the equipment, how it works ALONG WITH how the duct system and house interact with it.

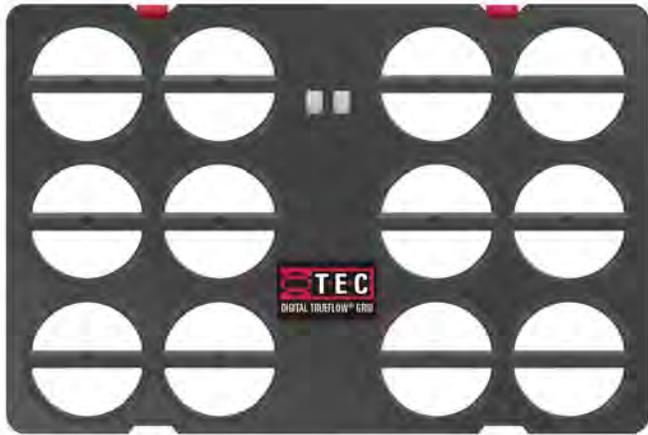
They must also understand their vital importance for the well-being of their customers. Again, as HVAC and plumbing contractors, we are the most essential contractors who walk into a person's house. Our industries' mission is indeed to protect the health of the nation. 



**Mark Hunt** began working in the PHVAC industry in 1983 as an installation technician in residential new construction. Eventually, he worked with several manufacturers, training contractors, and engineers. Hunt joined National Comfort Institute in 2023 as an instructor. He can be reached at [ncilink.com/ContactMe](https://ncilink.com/ContactMe) with any questions or comments.



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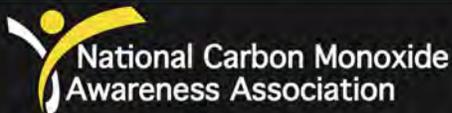


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### UPCOMING NCI TRAINING: SEPTEMBER - OCTOBER 2024

#### PUBLIC LIVE TRAINING

##### Residential HVAC System Performance and Air Balancing Certification Bundle

September 10-12: Troy, MI  
October 8-10: Glen Burnie, MD  
October 8-10: Monroeville, PA

##### Combustion Performance & Carbon Monoxide Safety Training Program

September 17-19: Hartford, CT  
September 17-19: Lansing, MI  
September 17-19: Roswell, GA  
September 24-26: Johnstown, CO  
September 24-26: Waterbury, CT  
October 1-3: Austin, TX  
October 1-3: Eagan, MN  
October 22-24: Mentor, OH  
October 22-24: Grand Rapids, MI

##### Commercial Air Balancing Certification Program

September 17-19: Denver, CO

##### Airflow Testing and Diagnostics

September 17: Somerville, MA  
September 24: Absecon, NJ  
September 24: Tampa, FL  
September 24: Utica, NY  
October 1: Dayton, OH  
October 15: Johnstown, CO  
October 29: Kissimmee, FL

##### Duct System Optimization Certification Program

September 18-19: Somerville, MA  
September 25-26: Absecon, NJ  
September 25-26: Tampa, FL  
September 25-26: Utica, NY  
October 2-3: Dayton, OH  
October 16-17: Johnstown, CO  
October 30-31: Kissimmee, FL

#### PUBLIC LIVE TRAINING (cont.)

##### Duct System Optimization & Residential Air Balancing Certification Program

October 15-17: Foxborough, MA

##### Refrigerant-Side Performance Certification Program

October 22-24: Denver, CO

#### PUBLIC ONLINE LIVE TRAINING

##### Residential System Performance Training Program - ONLINE LIVE

October 1-3  
October 8-9

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##### Hydronic Testing, Adjusting, and Balancing

September 10-11: Anaheim, CA  
October 22-23: Tulare, CA

##### Duct System Optimization and Residential Air Balancing Certification Program

September 17-19: Anaheim, CA

##### Refrigerant-Side Performance Certification Program

September 24-25: Anaheim, CA

##### Combustion Performance and Carbon Monoxide Safety Training Program

October 1-3: Anaheim, CA

##### Airflow Testing and Diagnostics

October 15: Anaheim, CA

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##### Airflow Testing & Diagnostics Implementation Workshop

October 16-17: Anaheim, CA

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##### Duct System Optimization - ONLINE LIVE

October 22-23: *Part 1-2*  
October 29-30: *Part 3-4*

#### \*\*TECH CLEAN CALIFORNIA TRAINING [ncilink.com/TECHCleanCA](https://ncilink.com/TECHCleanCA)

##### Airflow Testing and Diagnostics

October 29: Stockton, CA

##### Refrigerant-Side Performance Certification Program

October 30-31: Stockton, CA

#### \*\*TECH CLEAN CALIFORNIA ONLINE LIVE TRAINING [ncilink.com/TECHCleanCA](https://ncilink.com/TECHCleanCA)

##### Refrigerant-Side Performance Training Program - ONLINE LIVE

September 10-11: *Part 1*  
September 17-18: *Part 2*

##### Residential System Performance Training Program - ONLINE LIVE

October 1-2: *Part 1-2*  
October 8-9: *Part 3-4*

\* NCI training sponsored/subsidized by Southern California Edison (SCE) for qualified local contractors.

\*\* NCI training sponsored by TECH Clean California for qualified local contractors.



Visit [NCIlink.com/ClassSchedule](https://ncilink.com/ClassSchedule) to view the latest schedule.



**NEW NCI MEMBER BENEFITS!**

If you are considering joining the High-Performance HVAC “movement” by becoming a member of National Comfort Institute (NCI), you should [take a look at all the benefits that gets you.](#)

But wait, there is more.

NCI recently announced a new partnering with [measureQuick](#) (mQ) and [The Energy Conservatory](#) (TEC) on a new app ecosystem to support the tried-and-true NCI High-Performance Contracting™ principles that we’ve taught for decades.

If you’re familiar with NCI’s [AirMaxx app](#), then you’ll be pleased to know that new **quick tests** in measureQuick and workflows in the TEC TrueFlow app mirror that functionality. But there is now also **Bluetooth instrument support and direct fan airflow measurement** by using the [TrueFlow Grid](#).

As excited as we are about the new apps from TEC and mQ, our partnerships with them go even deeper. NCI invested heavily in new member benefits with both of these partners.

With measureQuick, **NCI Members** will enjoy **FIVE** free measureQuick full projects per month, and **Learning Excellence Online and Premium members** will receive **10** free projects per month.

This allows you to produce professional quality reports, save your data, take screenshots, and integrate with a CRM, among other essential functions for running a business based on

High-Performance HVAC™ principles.

With The Energy Conservatory, **members get a discount** found through TEC’s store. NCI members need to visit the TEC page in your [Member Rewards section here](#) to get the member discount code. The TEC Digital TrueFlow is not only the most accurate and simplest way to measure fan airflow, it’s an exceptional tool for selling High-Performance HVAC. This special discount makes the investment in performance measurement even sweeter.

If you’re curious or have questions about how these new technologies can help your company, we encourage you to call us at **800/633-7058** or attend one of our **Airflow Testing & Diagnostics** courses and then the **Implementing Airflow Testing & Diagnostics** class that goes along with it.

You can call that same phone number to find out more about joining the NCI membership.

**DAVID RICHARDSON SPEAKS ON THE HVAC GRAPEVINE PODCAST**

On August 18th, NCI’s David Richardson was a guest speaker on the [HVAC Grapevine](#) podcast, co-hosted by Mike Cianfrocco of HVAC contracting company, **Michael Cianfrocco LLC** and Chris

Hughes of **The Energy Conservatory**. Also on the show was Ty Branaman, HVACR educator and content creator of [love2hvac.com](#) fame.

In this episode, Richardson explains what the Air Upgrade is, how it works, and why HVAC contractors should rethink their approach to airflow as part of a comfort system design.

HVAC Grapevine, in their own words, is “A fun environment where you can listen and learn from industry leading experts about their experience in HVAC.”

In this episode Richardson talks about what customers care about — which he says is what contractors should care about even more.



“Most customers don’t care about sheet metal, ducts, and insulation. What they care about is what those things do. That is what Air Upgrades are all about.

“Air Upgrades take a pre-determined scope of work that puts it into a single package that improves airflow and static pressure at the equipment. As a result, air upgrades improve comfort problems and even efficiency problems at the same time.”

Learn more about Air Upgrades from this HVAC Grapevine episode by [clicking here.](#) 



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# Summit 2024: Bigger and Better Than Ever!



**Dominick Guarino** is publisher of *High-Performance HVAC Today* magazine and President & CEO of National Comfort Institute, Inc. He can be reached at [ncilink.com/ContactMe](https://ncilink.com/ContactMe)

On behalf of the entire NCI team, I extend a warm welcome to everyone attending the High-Performance HVAC™ Summit in Asheville, North Carolina on September 10-13th. It's hard to express in words how grateful and humbled I am that we are in our 21st year and it's going to be the best ever.

We invite both newcomers and long-time participants to attend the Orientation Meeting on Tuesday at 5:15. It's a great opportunity to get the lay of the land and see your fellow contractors before the Welcome Reception at 6 pm.

## A NON-TRADITIONAL CONFERENCE

As many attendees over the past 20 years have told us, "Summit is unlike any other industry meeting." It's truly an intimate gathering of like-minded professionals with a laser focus on High-Performance HVAC.

This conference is designed to help you and your team on your path to High-Performance. Attendees will be able to choose from technical, sales, and business workshops all focused on how to profitably implement this approach in your business. And this year we feature a special track called, "**High-Performance Heat Pumps.**"

While typical conference speakers are industry consultants or vendors, our session leaders come from the field, and either own, or have leadership roles in High-Performance HVAC companies.

Thank you to all who have put so much time and hard work into developing amazing, content rich workshops this year!

Another unique aspect of Summit is it doesn't have a traditional tradeshow. Our select group of exhibitors is made up of industry partners that support education and provide products and services to help high-performance contractors achieve their goals.

This year's theme is "OUTPERFORM." Each of the sessions and workshops have been curated to help you OUTPERFORM typical installations, help your company OUTPERFORM your competition, and help you OUTPERFORM your current sales and profits over the next year.

## IT'S A RECORD!

We are excited to announce record attendance this year! What's even more exciting is all the new faces at Summit. Along with a record number of new attendees we welcome many industry influencers to their first Summit. Most are contractors or field people who share their knowledge online and host industry experts through their podcasts, streaming programs, and YouTube videos.

Our industry desperately needs these folks to continue to spread the message that we can do better. It warms my heart to see the next generation really taking hold of High-Performance HVAC and making it their mission – I know Rob Falke is smiling from heaven as well.

Look for podcasts, live streaming, and recorded video from Summit on our pages and numerous other social media influencer channels and pages.

Summit is really a year-round event. While we meet just once a year – it continues through the relationships built among the contractors, industry professionals, and NCI's team of instructors and support staff.

I'm also excited to announce that Summit 2025 will be in Austin, TX. We have chosen an amazing resort. You'll definitely want to take your family to this one! I have no doubt next year will be even bigger than this year as this movement continues to grow at a more rapid pace than ever.

To all those joining us this year in Asheville, WELCOME. I am so excited and honored to be with you. It's going to be a blast! 



# Become an NCI Member Today!

Your key to success in High-Performance HVAC™ is a strong support network – always there when you need it. NCI helps its members overcome the typical hurdles associated with implementing this measured performance approach.

Choose the option that best suits your company's needs. Stay on top of new methods and processes to keep your company on the right path to becoming a High-Performance HVAC Contractor.



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# High-Performance HVAC™ Training



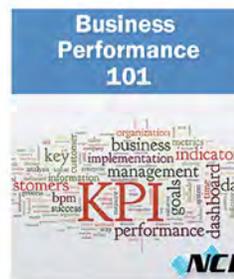
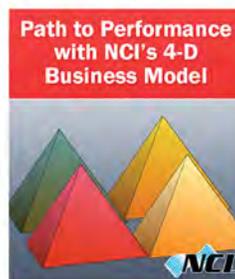
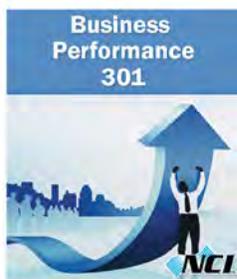
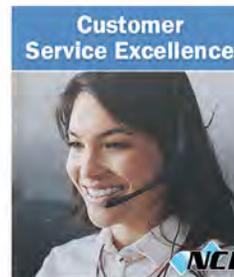
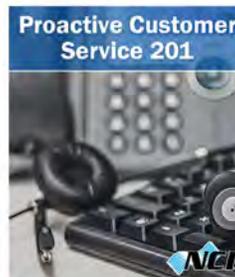
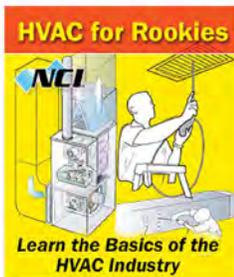
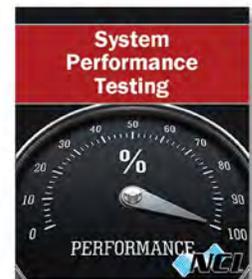
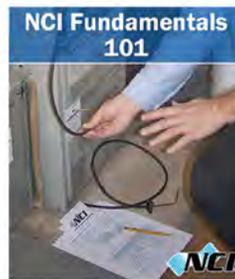
These courses are focused on helping your organization succeed and grow, at your pace. If you're just starting out, or have been in business for decades, there's training that you will find helpful on your path to performance.

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