

HIGH PERFORMANCE HVAC TODAY™

If You Don't Measure, You're Just Guessing!™

TOP 10 *Issues Impacting Commercial System Performance*

ALSO IN THIS ISSUE:

**Contractor Spotlight:
Vincent's Heating and Plumbing**

ABCs of High-Performance Contracting: Part 4

**Sales Performance: Setting the
Appointment and Customer Expectations**



WIRELESS HYDRONIC BALANCING KIT

Chiller Freeze Protection | Pump Pressure Drop | Refrigerant Pressure Monitoring



The Wireless Hydronic Balancing Kit was designed by your HVAC market leader to be the most accurate and easy to operate manometer on the market.

This balancing kit has two wireless transducers that measure the pressure drop across hydronic system valves and communicate to an Android™ handheld device via Bluetooth® wireless technology. The handheld's pre-loaded software allows users to read, record, and share data in the simplest way possible.

The wireless capability eliminates the need for cumbersome and unruly hoses. Its ergonomic design allows a single operator to monitor and balance a hydronic system in less time than traditional methods.

Unlike other hydronic manometers on the market, the 490W has built-in flow conversion capability, which shortens reporting time and eliminates human error during flow calculations.

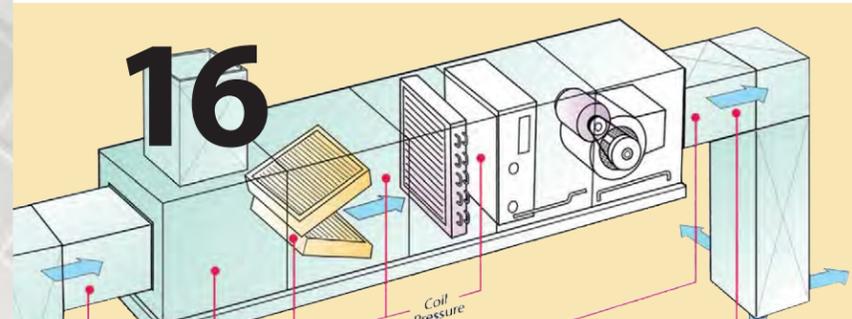
The kit's overall efficiency, ergonomic design, and streamlined software make it the ideal solution for contractors looking to save time and money on a job.

SERIES 490W | REQUEST A QUOTE TODAY

800-872-9141 | dwyer-inst.com/M/490W



HIGH PERFORMANCE HVAC TODAY™



TECHNICAL:

Top 10 Issues Impacting Commercial System Performance

Knowing these can help lead you towards specific diagnostics. NCI's Ben Lipscomb, P.E. explains.



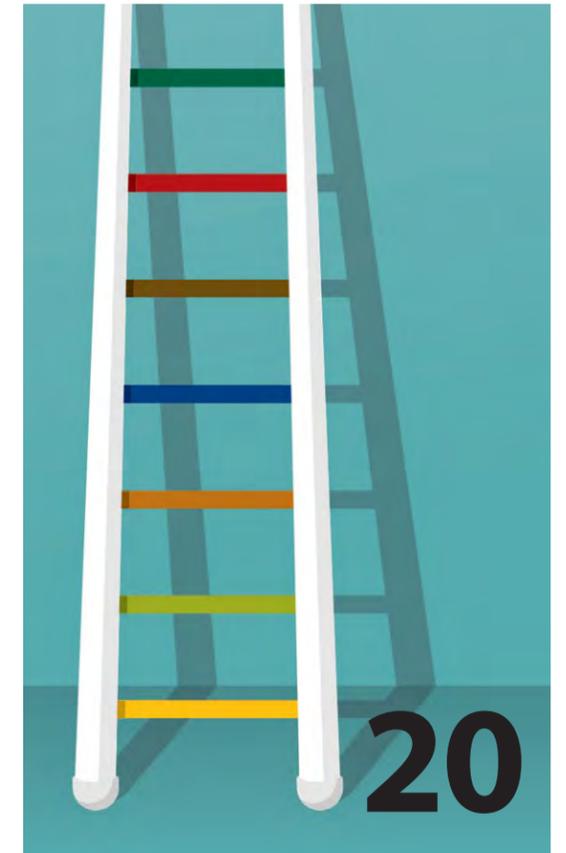
SALES:

Setting the Appointment and Customer Expectations

Sales expert Tom Piscitelli highlights the opportunities you have if you set your sales appointments correctly.

DEPARTMENTS

Online Content.....	4
Today's Word	7
High Performance News.....	8
High Performance Products.....	11
Contractor Spotlight: Vincent's Heating & Plumbing	12



MANAGEMENT:

ABCs of High-Performance Contracting – Part 4

Dominick Guarino addresses five additional steps to get your business on the high-performance track.

Photo of the Month	27
Member Update	28
Ad Index.....	29
One More Thing	30

FREE Monthly Download



For September's download, we have a procedure for technicians to use with the Testo 605i Psychrometer. This data sheet is for using the Testo Smart Probe App with the 605i.

It provides a 10-step procedure for setting up the psychrometer, and then a five-step procedure for using both to conduct temperature testing. Includes helpful images and diagrams showing where to use the 605i on the ductwork as well as how to use the app to read the measurements.

Go to ncilink.com/md1018, or use your phone with the QR Code below.

By registering for free on NCI's website, access this download and many more.



Online University

Featured this month is the **System Temperature Measurement Basics** module of the Advanced Technical Training series of online training.

Accurate temperature measurement is one essential skill you need to effectively test HVAC systems using NCI's exclusive procedures. System temperature measurement brings a new dimension to testing.

In this class you will uncover the reasons why installing higher AFUE and SEER equipment is not always the solution to energy efficiency issues.

Read more at ncilink.com/ou1018



BLOG POSTS

ECONOMIZER REPAIR OPPORTUNITIES



Economizers are in the spotlight as a prime opportunity for energy savings in the commercial HVAC marketplace. Blogger Rob Falke states that it's said, with little argument from those in the field, that nearly 80% of air-side economizers are non-functional. So if that's true, opportunity is calling any mechanical contractor willing to step up and take this bull by the horns.

Read his blog post at ncilink.com/econrepair.

TEAMWORK MAKES THE DREAM WORK

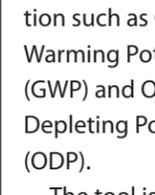
When the team works together to solve problems and agrees on how to deliver solutions, they all become stronger and more receptive to each other's needs. In this **Legacy Series Post**, Nita Brooks shares how, in a positive teamwork environment, the group values collaboration and accomplishes so much more.



Read her blog post at ncilink.com/TWDW

There's An App for That ...

This month we feature the Danfoss Refrigerant Slider App. It provides you access to a user-friendly, quick pressure-to-temperature refrigerant converter. The tool covers more than 80 refrigerants, including natural refrigerants, ammonia, and transcritical CO₂. Danfoss provides informa-



tion such as Global Warming Potential (GWP) and Ozone Depleting Potential (ODP).

The tool is based on NIST Refrigerant Properties and is using the Antoine equations for the conversion. You can see both dew and bubble point for refrigerants with glide.

Please note that the Refrigerant Slider is not a scientific tool and is intended only as a tool for use in the field.

This FREE app is available in both the Apple (ncilink.com/RefrigApp2) and Google (ncilink.com/RefrigApp) App stores.



MyHomeComfort.org

The source for home owners to find the right contractor (you!)



As an NCI-certified professional, you are uniquely trained to solve comfort, energy, safety, and health issues for home owners. **They are looking for you, so don't miss out!**

MyHomeComfort.org is the place where home owners can get their questions answered and to find you, the professional they need.

You can only be listed if you or your company are currently NCI-certified, so be sure that all your certifications are up-to-date. NCI members get a premiere listing with additional information about your company. **Be sure to take advantage of this lead-generating tool today!**



Call NCI Customer Care at 800.633.7058 to confirm your listing is correct and up-to-date.

ACCURATE.
DEPENDABLE.
VERSATILE.

TSI provides the most accurate, dependable and versatile ventilation and indoor air quality measurement instruments on the market today.

- + Hydronic Manometers
- + Micromanometers
- + Velocity Meters
- + Capture Hoods
- + Thermal Anemometers
- + Indoor Air Quality Monitors

To learn more, visit www.tsi.com/comfort



SUMMIT WEEK 2019



SAVE THE DATE!

April 15-19, 2019

Orlando, FL



Watch your email and GoToSummit.com for more info!

TODAY'S WORD

By Mike Weil

Keeping Up with the Times: *What Changes Influence Your Business Today?*



Mike Weil is editor-in-chief and director of communications and publications at National Comfort Institute, Inc. He can be reached at mikew@ncihvac.com

Recently I spoke with several HVAC contractors who commented on how the industry today is so different than it was just eight or nine years ago. That got me thinking about why.

So here are some key changes that continue impacting the HVAC Industry and your businesses.

Top Technician Skills: Trained and certified technicians are the norm. You must have them. But that isn't enough. Technicians need great people-skills too. Those who have both are worth their weight in gold, which means you must pay them more.

By their nature, generally speaking, the people-skills part doesn't come naturally, but it can be learned. That costs money too. Think of it this way -- it's an investment in the future.

Manufacturing Changes: More than ever before, manufacturers are building Smart Technologies into their products. This is driven by regulations, the development of Green Building standards, and evolving ASHRAE standards. It's all about energy savings through better controls, system efficiencies, and data collection. This means more training is necessary for your technicians.

The Tech Industry's Impact on HVAC: Apple, Google, and the other Internet companies have an undeniable hold over nearly every person alive today. For the HVAC Industry specifically, their apps and software enable building managers and owners to operate facilities from mobile phones.

Homeowners can do the same. Combined with sensor technologies, data gathering is easy, and analyzing it is even easier. These types of tools need to be mastered and used by you and your workforce team.

Data-based Decision Making: Consumers and contractors alike want more information be-

fore they make buying or management decisions. Business owners are leaving the "intuition" or "gut-feel" part of their decision making behind for quantifiable metrics. I'm talking about everything from gross revenue per technician to time spent on the job, fleet management, accounting, payroll, and so much more.

What about system performance? There are great tools for recording system data and analyzing it to help you diagnose and repair customer comfort issues like never before.

Do you use data for decision-making?

Web-Based Reviews: Consumers use the data of online reputations -- web-based reviews of your company, people, and services to make buying decisions. Their expectations are higher than ever, and much of this is due to what they learn on discussion forums, review sites, and digital/web content. Do you know and manage your online reputation?

Marketing Trends: If you're not marketing to consumers on their mobile devices, you are missing the boat. Social Media connects consumers and the business world in ways unheard of just 10 years ago.

This means your website needs to not only be mobile friendly, but quick to load, and super easy to use. When is the last time you updated and upgraded your online presence?

THE GOOD NEWS IS ...

Yes, change really is the only constant in our lives. For the HVAC world, that change is now flooding in from outside technology that has a direct impact on your business.

If you do it right, this can be an excellent thing. Technology can even help attract new people to your company -- customers and technicians alike. Everyone wins. Good news indeed!

Professional Performance-Based Contracting™ Trainers Gather

Since 2011, National Comfort Institute, Inc. (NCI) trainers meet annually to re-sharpen skills, build camaraderie, and learn materials for new certification classes and updates to older ones. This year NCI **Trainers Week** was held in early August in Cleveland, OH.

Seven years ago, NCI President Rob Falke and NCI CEO Dominick Guarino decided, with the growing demand for advanced technical training and certification, the only way to provide the very best training program was to help trainers hone their technical knowledge, presentation, and communication skills.

Just like the HVAC contractors, technicians, and installers they teach, NCI trainers need to continuously develop and hone their own practical skills and strategies. This enables them to better train students in the state-of-the-art practices necessary to be high-performance HVAC contractors: proper testing and diagnosing airflow issues, repairing and renovating duct and mechanical systems, using the proper tools and instruments, and more.

According to David Richardson, one of NCI's trainers as well as a curriculum devel-

oper, "It's not just about making sure everybody gets new information. It's about making sure we effectively deliver the information to our students in the most efficient and effective manner possible. Our job is to draw students in and get them involved. We want them to get excited."

In fact, he says Trainers Week works the same way. Every NCI trainer has a role to play, taking ownership of a part of the training and leading the class during their segment. Rob Falke, David Richardson, and Steve Vannoy – NCI's Technical Curriculum Manager – decide which trainer will present on which topic based on a SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats).

"We look for areas where each trainer has strengths, areas where they can help their fellow trainers improve," Richardson adds. "We also decide which presenters will introduce new classes and new materials."

Rob Falke says training the trainers is also a way for NCI to help them recharge their batteries. "It allows us to make sure they are delivering consistent training that is based on NCI's philosophies



NCI trainers practice using an Amprobe instrument to measure airflow.

and approach to HVAC systems. This includes plenty of hands-on training when it comes to using the right tools, instruments, processes, and so much more," Falke adds.

"We feel we have a higher purpose in our industry, and that is to lead and to change it for the better," he says. "When we train, we help students see the opportunities for themselves and their companies in High-Performance HVAC Contracting. Our mission is to help students be confident in their ability to use

what they learn and empower them to successfully implement that into what they do each and every day."

To see what type of training NCI offers, visit ncilink.com/train for a schedule and description or call 800-633-7058 to learn more.

WINNER, WINNER, CHICKEN DINNER!!

Each month *High-Performance HVAC Today* magazine sponsors a photo contest on its website for readers to share some of the amazing or crazy installations they find while on service or new install calls. Photos are posted on the website, and visitors can vote on the one they think should win the \$50 gift card, courtesy of National Comfort Institute.

In August, voters selected the entry from Trinity Air, Inc., Peachtree City, GA. The entry was submitted by Service Manager Brad Hoff.

"Thank you for the gift card," Hoff wrote in an email to Editor-in-Chief Mike



recent service meeting. Again, thank you and we hope to send you more photos in the future of the crazy things we come across."

To see the winning entry, just go to ncilink.com/0818POMWin.

If you'd like to submit a photo for consideration in an upcoming contest, it's simple: just go to ncilink.com/PhotoOfMonth and upload the photo and a brief description.

HAPPY BIRTHDAY!

The Danfoss radiator thermostat – which is used in millions of homes – just turned 75 years old!



Danfoss Chairman of the Board Jørgen M. Clausen (left) and President & CEO Kim Fausing (right) celebrate the world's first radiator thermostat at the company's factory in Silkeborg, Denmark to measure airflow.

Some history: in 1943, Danfoss founder Mads Clausen, invented the world's first radiator thermostat. He patented it and gave Danfoss a leading position when the company began mass producing it.

Since 1943, approximately 350 million have rolled off Danfoss' production line.

The latest version is the intelligent radiator thermostat Danfoss Eco™ – which won the prestigious design awards Ret Dot and Danish Design Award.

ACCA CHANGES LEADERSHIP

Air Conditioning Contractors of America (ACCA) announced in early September the departure of **Paul Stalknecht**, president & CEO, who plans to pursue other opportunities.



Paul Stalknecht

Stalknecht began his ACCA career in 2001. He has led the 50-year-old association as its president and chief executive officer ever since.

In a letter sent to all ACCA members, current chairman Steve Schmidt said, "The Board of Directors has appointed **Barton James**, senior vice president of government affairs, as interim president and CEO. Barton's advocacy and trade association leadership experience will be invaluable as ACCA engages with our membership to advance the industry and better align our capabilities to deliver superior services and products."



Barton James

BRADFORD WHITE AND ELLEN ROHR TEAM UP

Ellen Rohr, who's helped countless plumbing and HVAC business owners build and protect their bottom line, is now a free resource of business growth



information on Bradford White Water Heater's *For the Pro™* website.

Her new business development video series, *Ellen's Corner*, appears exclusively in Bradford White's contractor enrichment site found at ncilink.com/FTP.



NCI Training Team. Front Left to Right: Tom Johnson, Scott Fielder, Steve Vannoy, Rob Falke, Ben Lipscomb, Paul Wieboldt, Dominick Guarino, and John Puryear. Back Left to Right: Casey Contreras, David Richardson, Jeff Sturgeon, and Jim Davis.

Technical Differentiation Makes All the Difference

It was 1959, in the city of Port Huron, MI, when Vincent Unte founded Vincent's Plumbing and Heating – a one or two-man operation that never grew. Unte, who had actually retired some years before, founded the company to keep busy. According to those who knew him, he was very demanding and had a hard time keeping workers.

In 1966, Ray Squires, who was working at a local supply house, heard that Unte needed a helper. Looking for a chance to better himself and his family, Squires was confident he could get along with anybody, and took the job.

It soon became apparent that Unte had earned his reputation. Desperate to keep his young apprentice, he persuaded Squires to remain. They agreed that as soon as Squires got his plumbing license, Unte would give him the business and sell him the inventory and tools.

Squires agreed, and after obtaining his master plumbing license in 1971, he took over the business and kept the "Vincent's" name.

According to Ray's son Daniel Squires, his father started out the way many HVAC contractors do – good technical skills, but no business or marketing experience. Regardless, it was in those early years that he and his wife, Kathryn, came up with the Vincent's enduring slogan, "Wherever you see a Vincent van go, you know the job will be a work of art!"

The company focused on plumbing

and hydronics work – both steam and hot water. Ray hired a former employee of Unte – Dave Frasier – to be his helper. Frasier eventually became the service manager and remained with the company for 38 years. Though he retired, he continues offering his expertise in a part-time capacity.

BECOMING A FAMILY BUSINESS

Ray Squires' sons, Daniel and David, both began working in the business while they were in high school. Daniel started out on the ground floor, digging trenches for \$20 a week. He realized that was something like 56 cents per hour and renegotiated his deal with his dad.

After high school, Daniel attended local community college, initially to study music. His passion was music, but he also took business classes since his father agreed to pay for them. Daniel discovered he enjoyed business.

After obtaining an associate degree in business, he worked full time as a plumbing apprentice and junior heating technician.

In 1980, faced with a poor econo-



Left to right: Daniel Squires, a photo of Ray Squires, and David Squires.

my in which he only worked about six months, he went back to college. He earned his Bachelor of Science degree, while continuing to work. He also obtained his plumbing license. In 1984, he graduated with a B.S. in Accounting, but quickly realized that his best opportunity was not in accounting – it was with his father's company to which he became fully committed.

Meanwhile, David also worked in the business throughout high school, then went to Ferris State and earned a degree in business administration and another in HVACR. Both brothers joined the company full-time nearly on the same date. At that time the company had three or four employees.

"Dad brought us in as partners," he explains. "David worked to build up the field side of the business and I concentrated on developing a business infrastructure to support growth."

"For several years we grew. In fact, we doubled in size for five or six years. Then in 1986 we incorporated and changed our business emphasis from plumbing to heating. We reversed the order of the company name to reflect the change and became Vincent's Heating & Plumbing, Inc."

REFRIGERANT RECOVERY

During the next three years, the HVAC Industry was reeling from the impact of federal legislation mandating the elimination of R-22 and pushing contractors into the refrigerant recovery business. An entire industry



Top: The Vincent's Heating and Plumbing field service and installation team pictured in front of the VHP trucks.
Inset Left: Vincent's office staff.



was born to create tools to help contractors recover refrigerant from older equipment.

According to Daniel, they found much of that equipment too expensive, too unwieldy, difficult, and slow to use, so they set about building their own.

He says they patented a light-weight recovery device that could recover a five-ton system in less than 15 minutes – faster than anything on the market at that time. It was unique in that it harnessed the existing compressor in the condenser to accomplish the task.

They called it the SRD-1 – short for "Squires Retirement Device" which became the "Streamline Recovery Device" when the invention was sold to Mueller Brass (which is now Mueller Industries).

Eventually, Mueller subcontracted the Squires to sell the recovery device for them. David traveled around the country selling the SRD-1 and eventually crossed paths with Contractors Success Group (CSG).

"That was our first industry affiliation and we learned a lot from them," Daniel says.

"Eventually, Mueller got out of the recovery business, and we did too. Later, the experience and the industry contacts we made became invaluable in our next venture, Online Access, a website and marketing company."

THE MARKETPLACE CHANGES

Between 1999 and 2000, Vincent's Heating had around 36 employees and

was doing just under \$3 million in sales.

"Our overhead was sky high – we had too many people for the revenue we were making. So, in 2000, my brother David split from Vincent's Heating & Plumbing and began a business called Online Access. He is still involved with the HVAC company and still holds a mechanical license.

"Eighteen years later, Online Access remains a very successful company."

Daniel says the economy and current events of those years lead to what he calls, 'tough times' for the business. The bottom really fell out between 2001 and 2009 after the 9/11 attacks, the great economic recession, and the housing bubble burst.

The company shrank – from 36 employees to around 12. In addition to national issues, Michigan itself struggled with a decade-long recession, making the HVAC marketplace very difficult.

"I searched for ways we could become more efficient," Daniel says.

He explains that he spent time narrowing down the scope of service the company offers, backing out of the commercial market, and focusing on repair and replacement in the residential market.

He also began examining work processes and inventory control – both on the trucks and in the warehouse. He says one of the best things he did was create a standardized inventory.

"Every truck has the same supplies in the same place, and they get re-

stocked every day. The techs communicate what they used after a job, and those parts are then restocked into the techs' bins.

"This has allowed us to reduce the amount of stock the techs carry because we're replenishing on a more frequent basis," Squires continued. "It also provides more inventory control."

TRAINING AND THE NCI CONNECTION

In an effort to break away from the competition, Daniel began looking for opportunities to differentiate his family business.

"In 2006, I heard about this interesting training on Carbon Monoxide (CO) and Combustion testing," Squires says. "I sent our service manager, Dave Frasier, to this training to see what he thought. He came back and said, 'This is the real deal, tremendous stuff!'"

Daniel continues, "Frasier shared what he learned, and the light bulb went off for me. Becoming CO experts could totally differentiate us from our competitors. After further review, I brought Jim Davis in to do onsite training for our technicians."

Squires says that training session turned their understanding of combustion upside down.

"Everything I thought I knew about gas, oil, combustion, hydronics, and ventilation was in question now. Jim's class was very different from anything else in the industry. All our techni-

cians felt the same. In fact, as Jim was wrapping up his class, they all wanted to know if ‘we were really going to do CO and combustion analysis work and when we were going to start?’”

He adds, “It was so business changing. It was like our eyes had been blind and they were opened to not only the potential dangers but also the ways we could serve customers better. It has been that way ever since.”

Today, every technician from Vincent’s is a Certified Carbon Monoxide and Combustion Analyst. Squires says that when he hires someone, they go to that class as soon as possible. They understand this is the way Vincent’s does business. In addition, they understand they have to learn about static pressure testing and diagnostics because that is also part of what Vincent’s does every day. As Squires says, it gives him a technical edge over his competitors and it is something he feels won’t become the norm as quickly as some other best practices – like wearing booties.

“I was so afraid of talking about this, at first,” he explains. I didn’t want my competitors knowing about this because I feared they’d all start doing it.

“But I’ve come to learn that because it requires time and commitment, many contractors won’t follow suit. So I now talk openly about it, market it, and sell it.”

PROMOTING HIGH PERFORMANCE

Squires says that he is a strong promoter of branding and marketing. It’s another factor that helps differentiate his business. He re-branded his heating maintenance visits by calling them *Combustion Optimization & Safety Inspections* or COSI.



Brendan Squires on the job showing off his National Comfort Institute CO and Combustion Field Reference Guide.

This entails a thorough inspection and then a combustion test, plus basic cleaning of the burner area. He says it takes about 90 minutes to do.

“Because I have something so very different from everybody else, I can charge more for it. Instead of a \$79 or \$89 maintenance visit, I sell it for \$179. Better yet, as a member benefit of our VHP Club, it costs only \$11.25 per month, which is \$135 per year.

“By providing more value, people will buy it. But you have to make them aware of it. And that is where marketing comes in.”

Daniel says he believes in regular communication with clients and potential clients – something he does by using several tools, including:

- Monthly print newsletters
- Eye-catching billboard signs
- Radio spot advertising.

These promotions work, Squires says, but to make the most of a specialty like CO and/or air upgrades, he believes he needs a champion. Until recently, that job fell to him, but with all his other responsibilities, it became a lower priority.

Asked if he had anybody in mind for that role, he says he plans to assign that responsibility to his son, Brendan. Brendan joined the company in

May, 2017 and is quickly developing into an HVAC service technician.

“When the team agreed to do CO and combustion testing, I invested in all the equipment necessary. Then I designated a champion and that person held meetings once or twice a week. He focused on keeping the guys on the right path with regard to combustion testing. I need to have that on the air side.

“When it comes to differentiation and having the best trained and certified technicians, I have always believed this to be a technical cornerstone to our business. I think every contracting company needs a foundation on which to build and expand.

“For us, the knowledge we gained from NCI is a key component to what we are doing. It helps to keep us not only unique, but also on the right track.”

Staying on track technically makes all the difference for Vincent’s Heating and Plumbing. It is Daniel Squires’ goal to continue providing top-quality services in their market area and to continue building their already stellar reputation. For that reason, they have been named *High-Performance HVAC Today’s Contractor Spotlight for October 2018*. 

Take the First Step Towards High Performance

Duct System Optimization & Residential Air Balancing Certification Training

Learn how to deliver high quality, profitable duct system renovations that really work! Set yourself apart from competitors by knowing how to optimize a duct system so it delivers the heating and cooling the equipment was designed to provide.

Uncover air distribution upgrade opportunities to offer the highest quality, comfort, and performance your customers want and are willing to pay for.



BONUS!
Get NCI’s Exclusive **NEW Duct System Optimization Clip Board** with the tables and formulas you will use every day!

Upcoming Training in your area:

- October 9-11: Omaha, NE
- October 30- Nov. 1: Sacramento, CA
- October 30- Nov. 1: Tulare, CA



nclink.com/DSO



10 Issues Impacting Commercial HVAC Performance and Efficiency

Last month we looked at performance data from [National Comfort Institute \(NCI\)](#) that showed average commercial HVAC systems deliver just 48% of their specified cooling capacity to the occupied space. Furthermore, you can have two nearly identical systems serving similar spaces that are affected by completely different problems. You won't know where to start until you test.

It is helpful to know the most common issues, that can lead you towards specific diagnostics. With that in mind, let's look at the top 10 issues NCI sees on commercial cooling systems.

1) LOW EQUIPMENT AIRFLOW

Low equipment airflow is the number one issue contributing to low system performance. Over 60% of HVAC systems have airflow lower than 340 CFM per ton, when the industry standard is 400 CFM per ton.

Most equipment will only operate correctly between 350 and 450 CFM per ton.

What's crazy about this is that technicians often overlook airflow or assume it's correct and start looking for problems on the refrigerant side of the system.

This oversight leads to misdiagnoses, and often results in mistakes, like adding charge when charge isn't the problem at all. Low airflow causes low equipment capacity, low superheat, and can lead to coils freezing up or compressor failure. These symptoms translate into higher energy costs and shorter equipment life.

Sometimes low equipment airflow is caused by incorrect fan speed, a fan-belt drive slipping, or pulleys not properly sized or adjusted. If this is the case, the first step is to adjust airflow. As you do this, keep an eye on fan amps and make sure

they don't exceed the maximum rated current for the blower motor. If airflow can't be increased enough through fan adjustments, it's time to look deeper into the system.

High static pressure is often the culprit for low fan airflow. High **internal** static pressures result from dirty or restrictive filters and coils. High **external** static pressures result from restrictive ducts, closed fire dampers, balancing dampers, restrictive fittings, kinked flex duct, and restrictive grilles and registers.

If restrictions are the issue, profiling static pressure through the system at multiple points can help you identify the most restrictive sections. Then you can make improvements in those sections to help the system breathe.

Common improvement options include increasing duct size or adding ducts, resetting fire dampers, replacing fittings, replacing registers and grilles, straightening and properly supporting flex duct, and re-balancing the system to open up dampers that are throttling airflow more than necessary. After reducing restrictions, re-measure and adjust to achieve the required airflow.

2) HIGH FAN ENERGY

Some HVAC air handling equipment comes with direct-drive EC (Electronically Commutated) motors, higher horsepower motors, and/or "high-static" drive kits that can help them overcome high static pressures and still achieve appropriate airflows. In these cases, airflow might be adequate, but the fan energy required to deliver that air can represent a major cost.

This is especially true in commercial buildings that must provide continuous ventilation while occupied.

Using the techniques outlined in the low air-

flow section to identify and reduce airflow restrictions can dramatically reduce fan power requirements, saving energy.

3) LOW ENTHALPY CHANGE

If airflow across the evaporator is within specifications, but the enthalpy change is lower than about 6.0 Btu per pound for a direct expansion (DX) system (depending on the equipment airflow, outside air, and coil entering temperatures), it's likely a refrigerant-side issue.

If you suspect this, the first step is to conduct a thorough visual inspection for evidence of leaks, an improperly mounted thermal expansion valve (TXV) bulb, or missing refrigerant line insulation.

After the inspection, it may be time to connect refrigerant gauges for fur-

4) LOW AIRFLOW AT THE REGISTERS OR GRILLES

If equipment airflow is in spec and you still have low airflow at the registers and grilles, this indicates leakage through the supply or return duct system. Such leaks put air, as well as cooling or heating capacity, where it doesn't belong: either to the outdoors or into unoccupied and unconditioned spaces.

On the return side, be aware that outside air ventilation and open plenum returns affect how you interpret your measurements.

Taking live system airflow measurements at the equipment, registers, and grilles reveals actual leakage under operating conditions. You'll find highest leakage through openings closest to the equipment where operating static pressures are highest. These are the most important leaks to address.

5) HIGH ΔT THROUGH SUPPLY OR RETURN DUCT SYSTEM

High temperature changes through supply or return ducts indicate thermal losses due to poor duct insulation, poor sealing, or poor space insulation. The temperature difference between the supply air and a poorly insulated space surrounding the ducts can be more than 50°F. This can create a need for duct insulation levels well beyond typical code requirements. One solution is to wrap duct with a four-in. thick (typically R-12 to R-13.5) FSK duct wrap. Another solution is to seal, ventilate, and improve insulation of the space the ducts run through.

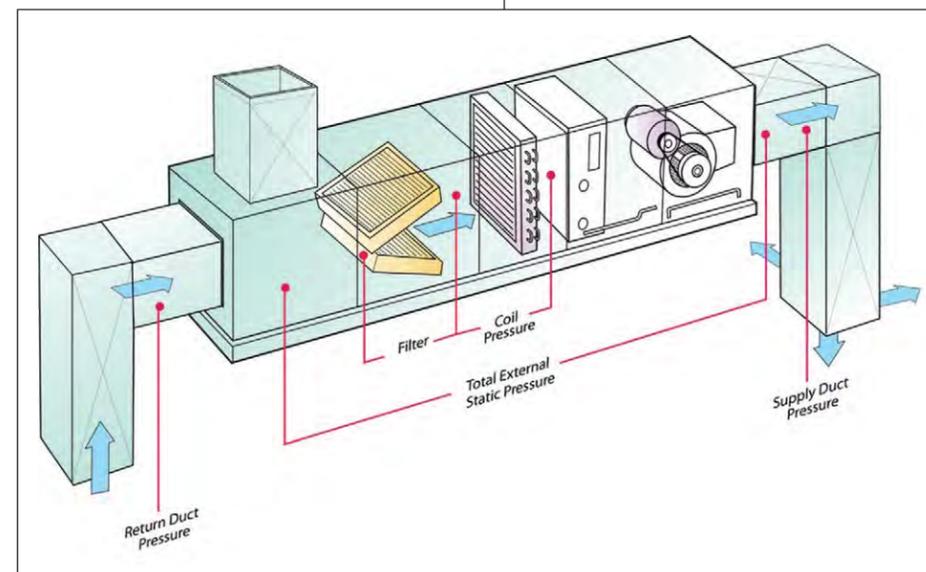
6) ECONOMIZER FAILURES

NCI data indicates that over 85% of existing economizers are non-functional. While some of this is due to equipment failures, other economizers are intentionally disabled or never hooked up to begin with.

Economizers serve the dual function of providing proper fresh air ventilation and using outside air for cooling when conditions allow. A typical economizer system includes supply and return dampers, a gear drive or linkage and actuator motor to move the dampers, a controller, and multiple temperature or enthalpy sensors.

That is a lot of points of potential failure. Finding the specific problem or problems can range from obvious to extremely difficult.

When faced with an economizer failure, make note of the damper position. If the dampers failed or were screwed shut, fixing the economizer and resetting the minimum ventilation position can actually increase energy use, depending on the climate.



ther diagnostics. Whenever you connect gauges you risk refrigerant loss, contamination, or the introduction of non-condensables. Follow all the proper procedures to purge your hoses and minimize the risks.

Please note: this is not the case when you perform a duct pressurization leakage test, which pressurizes the duct system evenly, potentially making leaks near the registers and grilles seem worse than they are under normal operation.

That said, the equipment will now be performing its intended function of supplying outside air while minimizing energy use. If the economizer failed while open, fixing it and setting a lower minimum ventilation position will almost always lead to savings.

If the economizer controls, actuator, or sensors are responsible for the failure, it's worth considering a retrofit to newer digital controls. Older sensors are notorious for drifting out of calibration.

Digital economizers generally support advanced controls like Demand-Controlled Ventilation (DCV) or variable speed supply fans that can be retrofitted to achieve even higher savings.

7) UNCONTROLLED VENTILATION

Ventilation is a multi-faceted topic that requires you to consider the outside air supply, as well as the exhaust, return, or make-up air system flows. When ventilation air is supplied through a package unit with an economizer, leakage through closed dampers can often be high enough to meet the design requirements.

It's important to measure flow rather than assuming it based on damper position. The higher the static pressure, the greater the leakage.

On larger system configurations using separate exhaust systems, a common problem is exhaust not interlocked with outside air supply. In other words, the exhaust system runs on an independent schedule or even 24/7. If you find separate exhaust systems, make sure you understand their function and then ensure they only run when they should.

8) POOR SPACE AIR DISTRIBUTION

Poor air distribution leads to hot and cold spots within the building. It also contributes to "stale" air in certain areas. It can also cause the system to run longer or shorter than necessary, depending on where the thermostat is in relation to the areas with low or high air currents.

Poor distribution can be caused by many issues including improper placement of grilles and registers, using the wrong type of registers, or a system imbalance.

In the case of poor air distribution, conduct a system performance test that includes register and grille airflows, then compare those to design airflows. If you find the airflows are within tolerance and there are still problems, consider the placement and type of the registers and grilles.

9) UNCOMFORTABLE SPACE TEMPERATURE OR HUMIDITY

Uncomfortable conditions in the space are often a symptom of one or more of the other issues we've covered, but they can also simply be due to occupants messing with the thermostat. Sometimes occupants will engage in "thermostat wars," where one person is hot and another is cold, and they battle each other by manually adjusting the temperature settings.

This results in the system continually alternating between heating and cooling mode when it could be doing a lot less work if the temperature were locked in at a nice happy medium.

To prevent the war, consider using a physical lockbox around the thermostat or even upgrading to a building automation system that doesn't provide occupant control access.

Another common issue is that the thermostat cooling setpoint is too low. Setting a low temperature can make a space feel "clammy." Users often interpret this as being too hot and will attempt to lower the temperature even further.

It's best to keep the cooling setpoint above 72°F for both comfort and energy conservation purposes. Remember also to inspect to verify the thermostat is sensing the average room temperature. A large hole behind the thermostat, common in commercial buildings, causes a thermostat to over-cool the zone.

10) THERMOSTAT SCHEDULING

Programmable thermostats and building automation systems let you schedule heating, cooling, and ventilation, depending on expected occupancy. However, these schedules are often incorrect because occupants override them, the building schedule changes, no one accounted for daylight savings, holiday settings don't match the building, or they weren't set up correctly in the first place. Another issue can be night-time cleaning or maintenance staff turning on the system and forgetting to turn it off.

There are a lot of potential solutions to scheduling issues, ranging from low to high tech. On the low-tech side, night-time cleaning can be scheduled into the system so crews don't need to touch the thermostat, and thermostat schedules can be reviewed regularly.

On the high-tech side, you can use occupancy sensing control systems to only provide heating, cooling, and ventilation when occupants are present. Additional schedule-related options include:

- **Night-time flush** to pre-cool the building

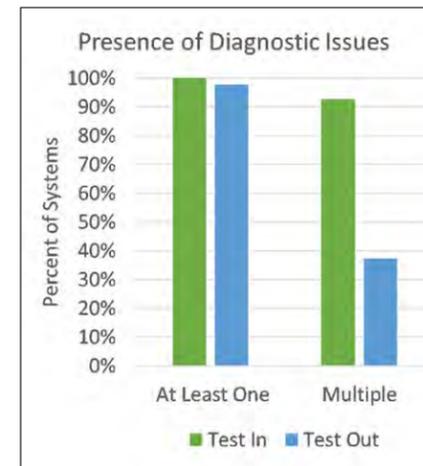
- **Optimum start and stop** to get the building to setpoint by the time occupants get there and "drift" to setback temperatures at the end of the day

- **Electric strip heat lockout** for optimum start to allow lower-capacity, but higher efficiency heat pump systems to slowly bring space temperatures up on cold mornings before occupants arrive

- **Economizer or low stage pre-cooling** before the hottest part of the day to slightly overcool the space and defer the need to cool when electric demand and prices are highest.

PROBLEMS ARE EVERYWHERE — KNOW HOW TO FIND THEM

Sometimes when you're trying to track down issues it can feel like



looking for a needle in a haystack. If you're seeing a system with room for performance improvements and you can't pinpoint the issue or issues, it might be tempting to think you must be doing something wrong and simply walk away.

Don't! Perfect systems are about

as rare as unicorns — they just don't exist. NCI data shows that virtually 100% of existing systems have at least one problem when they are tested in, and over 90% of them have multiple problems.

Isn't it helpful to know there's room for improvement on almost every system out there? It's nice to feel needed and know there is opportunity to improve every system.



Ben Lipscomb is a registered Professional Engineer with more than 14 years' experience in the HVAC industry. This experience includes laboratory and field research, Design/Build contracting, and utility energy efficiency program design. He is National Comfort Institute's engineering manager and may be contacted at benl@ncihvac.com.

Introducing NCI's First High Performance Mobile App:



NCI's new AirMaxx Lite™ app features easy-to-use data entry and easy-to-display reports.

Get started on the path to High-Performance HVAC™ today!

Download this free app (available for both Android and iOS phones) onto your phone or tablet, and immediately start using it to display an airflow 'grade' for your customers.



Apple App Store
ncilink.com/AML1A



Google Play
ncilink.com/AML1A



The ABCs of High-Performance HVAC Contracting: **PART 4**

Five More Steps To Becoming A Performance-Based Contractor

In this fourth part of our ongoing series, we will explore the last five of 10 distinct steps that will help you on your path to embracing High-Performance HVAC – should you choose to accept this mission.

It's important to understand that anyone can become Performance-Based – it's not an exclusive club designed to keep people out. As the saying goes, the "rising tide raises all ships." The more contractors doing this, the better it is for everyone – especially your customers!

Let's take a closer look at each of these steps on the road to High-Performance:

STEP 6 – HAVE SOMEONE WATCH YOUR BACK

There's nothing scarier than learning something new and unfamiliar and having no one to fall back on when you hit a snag or something you don't understand. It's like a flight instructor putting you in the pilot's seat right after your

first lesson, then wishing you good luck as he walks away from the plane.

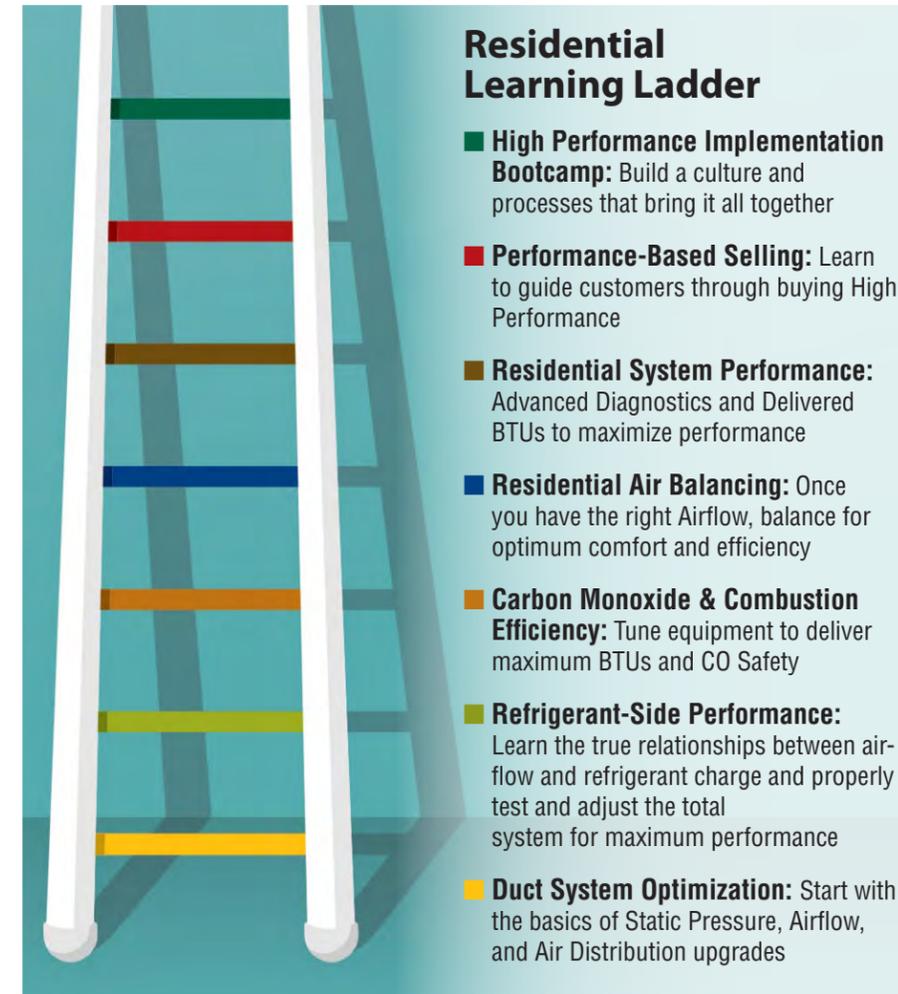
There's bound to be something you'll forget, or something you'll run into for the very first time, when you begin testing system performance.

You will make some mistakes, that's just part of "HVAC Performance Puberty." But nobody likes to crash and burn. This reality hit us many years ago. We noticed some contractors were able to fly solo right from the start, while many others struggled for years to make system diagnostics work in their companies. We realized someone had to support them when they hit bumps in the road.

Today you don't have to go it alone. There is now a comprehensive support structure designed specifically for Performance-Based Contractors. In 2002 National Comfort Institute (NCI) founded its membership group specifically for this purpose.

If you're serious about becoming Performance-Based, NCI membership can reduce a huge part of the learning curve for you. In addition to unlimited technical support, you'll have access to thousands of pages of technical materials, marketing pieces and ideas, sales materials, internal training lessons, hundreds of articles and tips, a growing knowledge base of frequently asked questions, member forums where you can seek advice from hundreds of other members, and much more.

NCI membership can help take the fear and the sting out of the



going it alone. While there are some great business coaches out there to help with some of the management aspects of the culture change High-Performance Contracting demands, there is no other place, to my knowledge, that approaches the specialized support you get from NCI.

Learn about all NCI member benefits and programs by going to: www.ncimembership.com.

STEP 7 – BABY STEPS

NCI has put together a *learning ladder* designed to help residential contractors and their employees with a step-by-step approach to their ongoing education. We also have a very similar commercial contractor learning ladder which we will share in a future article. Each of the educational steps of the

ladder are shown above.

While you can take some of the steps out of order, it's best to start with the first step and work your way up. The learning ladder applies to virtually anyone in your company who is involved in field work, including service technicians, installers, and sales people. It also applies to your management team. The people at the top need to know exactly what your frontline people are learning and im-

plementing. In addition to the training described in these steps, there is plenty of online training your team can access to get everyone on the same page – including operations, customer service, dispatch, etc.

Many of the articles in this series refer to specific processes, charts, procedures, products, and services provided exclusively through NCI. Whenever possible, I will mention other sources, but because so many of the processes and approaches were created by NCI, it's often impossible to offer alternate resources. I hope this doesn't deter you from following the advice in this series. These articles are based on decades of experience, research, testing, and development from which you'll benefit -- regardless of where you get your education and training.

STEP 8 – GET EVERYONE ON BOARD

The next step is to get your employees on board. It starts with getting them trained and certified in the disciplines described above. If you have 10 employees or more, it might make sense to bring the training onsite with private classes for your company. An additional benefit of onsite training is that your techs can spend more time in the field with the instructor, both before and after the classroom training.

OPPORTUNITY



Catch up on all the installments of this series:

Part 1: What is High-Performance HVAC and Why Do It? ncilink.com/ABCs-1

Part 2: Is It the Right Fit for Your Company? ncilink.com/ABCs-2

Part 3: Five Steps for Becoming A Performance-Based Contractor. ncilink.com/ABCs-3

If you have fewer than 10 employees, it might make sense to travel to a regularly scheduled class, or maybe get together with another company to share onsite training. If you don't have a lot of field personnel, you may need to send them to training a few at a time, so as not to disrupt your business. Once your people see you are serious about the change and begin to understand how different Performance-Based Contracting (PBC) is, you'll find your company evolving into something very different.

An important part of getting everyone in your company on board is to share your vision of how High Performance will impact them in a positive way. Be sure to include your game plan. There's no need to make a huge fanfare about it. A quiet thought-out meeting with the entire team will do far better than a

big, flashy rollout. It's best to under-promise and over-perform when it comes to a culture change.

Taking baby steps is always best. Share where you want to go and each of the steps you plan to take to get there.

Everyone will want to know how it will affect them, whether they tell you or not. Fear is usually one of the first reactions to change. Spend time with each person on your team, answering any questions they may have, especially about how their job will be affected. Will it be more work? Do they have an opportunity to advance themselves, to improve their careers, their financial situations? How far out of their comfort zone and expertise will they need to go? These are just a few of the questions you can expect. Try to address their questions proactively, even before they ask.



STEP 9 – UPDATE YOUR INTERNAL SYSTEMS AND RETHINK YOUR PERSONNEL NEEDS

Once you begin implementing High Performance at all levels of your company, re-evaluate some of your systems to make sure they can work with the new approach. You may need to modify your service procedures, forms, invoices, and service agreements to reflect the changes and capture important new information about customers' systems. As you roll things out, you may want to make some changes in your hiring practices, installation methods, compensation methods, and other key cultural elements of your business.

As you begin to grow the system renovation side of your Performance-Based company, you'll soon identify the need for specialists within your organization in two areas: Air Diagnostic and Balancing Specialists, and Duct Renovation Specialists. You'll quickly notice with these positions that your materials-to-labor ratio is significantly different than it is on equipment replacement and demand service.

Simply put, renovation work and Air Upgrades usually involve a higher ratio of direct labor to materials than when installing new equipment. This is one reason you need a more aggressive labor factor. You should price this labor higher to achieve higher contribution profit, making up for the fact that you're not reselling a high-ticket item.

Of course, if you are replacing equipment, which will happen often, price the different types of work separately and then combine them

in your proposal. The result will be a higher gross margin on the overall job. An important factor is to make sure you're pricing your renovation work based on what it's worth and your investment in the tools and education, not just a marked-up labor rate. More on this in future articles in this series.

One important factor to consider is when you hire and train duct renovation specialists, you don't need to necessarily pull from the existing skilled labor pool of service technicians and installers. After all, these specialists won't be dealing with refrigerants, equipment diagnostics and repair, electrical, or controls. With the prop-



er training, an individual with good mechanical aptitude and great people skills can be trained to measure system performance, perform a final test and balance and/or do duct renovations and repairs.

The beauty of this approach is it allows you to pull from a much larger pool in this tough labor market. Since these roles require fewer skills, and less formal education, your hourly labor costs can be significantly lower.

STEP 10 – JUST DO IT!

There is much truth and wisdom to this catchy marketing slogan from a well-known athletic shoe manufacturer.

Procrastination is the number one barrier to any major change. It's the number one reason contractors who consider becoming Performance-Based never quite get things off the ground. "We're too busy right now, but when we get around to it, we'll get started." Or, "Just as soon



Figure 1

"around to it," **Figure 1** is my gift to you: your very own Round "TUIT."

A journey of a thousand miles begins with the very first step. If you want to reap the benefits of High-Performance Contracting, you must take that first step, no matter how big or small.

The good news is it's much easier and less scary than it was five or 10 years ago. Many pioneers have walked these steps before you, scraping their knees and pulling arrows out of their backs along the way.

While it's no longer the Wild West, the path to performance is still somewhat of a gravel road. By getting on that path today, you'll be many miles ahead of those who will be driving down its four-lane highway in the years ahead.

In future articles in this series we will break down many of the **10 Steps to High-Performance Contracting** in much more detail. In the meantime, start digging deeper. If you've been holding back exploring this approach to your business, spend some time to learn more.

This magazine has numerous articles on the topic. Take some time to go through past issues. Also, NCI's website is jam-packed with information – available to you at no cost, to get you started on your path to High Performance. 



Dominick Guarino is publisher of HVAC Today magazine and CEO of National Comfort Institute, Inc. He can be reached at domg@ncihvac.com

as I fix _____ (fill in the blank), I'm going to get going on this."

These procrastination statements are just a few of dozens we've heard in putting off getting started. Many contractors who put it off year after year with these very excuses later told us they could kick themselves for losing two, three, or more years they'll never get back.

So, for all those folks who said they would start just as soon as they got

Setting Both the Appointment and Your Customers' Expectations

SETTING THE APPOINTMENT IS AN OPPORTUNITY TO SET YOUR CUSTOMERS' EXPECTATIONS FOR HOW YOU WOULD LIKE THEM TO BE ENGAGED IN THE CALL PROCESS. IT CAN SEPARATE YOU FROM OTHER CONTRACTORS EVEN BEFORE THE CALL IS MADE.

Have you ever run a call where the customer opened the door and instructed you to go around the house to look at the condenser? Did you arrive on time and another contractor was there? Do you start your call by explaining your process and they tell you they only have 20 minutes?

You have likely had these situations and worse. Some companies have sales call no-shows of up to 5% on all of their leads. If their lead cost is \$300, and the salesman runs 400 leads a year, that means 20 weren't home, costing the company \$6,000 net profit. Even worse, those 20 leads, properly set, with a 50% close rate and \$8,000 average sale, meant a company had an opportunity cost of \$80,000 in lost sales or \$30-40,000 in lost gross profit dollars. This example is for only one salesperson.

Let's not forget how the salesperson is affected. No show customers impact the salesperson's drive time, customer calling time, office calling time, wait-around time and so on. This is very frustrating. The lost commissions, well, that's not a good story either.

THE IMPORTANCE OF SETTING APPOINTMENTS PROPERLY

No-shows are part of the story. Even more important is how all appointments are set. Making appointments in the right manner has the potential to improve the close rate and job selling prices. Think about this: by improving close rates by 5% and average job prices by only \$1,000 on 400 leads, you can increase annual sales by \$300,000.

To do that the salesperson must take more time and conduct a more professional call, showing customers what is substandard in their system and explaining the negative impact of not addressing fundamental design and/or installation problems. When the customer service representative (CSR) sets the stage for this kind



of call, the salesperson is more likely to have receptive customers.

Setting the appointment is typically something that is not prescribed or managed by the owners. It's well worth the time it takes to get this done and to make sure it continues to get done. Let's take a look at how you can improve the level and quality of customer engagement on every call to produce more sales.

FIRST, DECIDE WHAT YOUR IN-HOME SALES CALL PROCESS IS

If you don't have a written process, you need to create one or your CSR can't explain it to your customers. See my [July article for details \(ncilink.com/SalesProcess\)](http://ncilink.com/SalesProcess).

What Do You Want Your CSR's to Say? What is said, when it is said, and how it is said are all important. I've made many ride-along coaching calls where the homeowner was clearly surprised at what the salesperson said they were going to do and responded defensively, suspecting the salesperson had some alternative agenda.

The owner, salesperson, and everyone who sets the appointment should be involved in the appointment-setting plan. I'm a proponent of scripting things like this because various people might be setting the appointment and new people will need to be trained.

Here's a sample script of how this might be done:

SAMPLE SCRIPT 1

CSR: Good Morning, thank you for calling Our Company, my name is ____, how may I help you today?

Customer: I'd like to have someone come out and give me an estimate for a new furnace/air conditioner/heat pump/boiler/water heater.

CSR: Great. I'll be glad to help you. Let me gather your information and then I have a few questions for you so our comfort advisor will be prepared. This will take about 10 minutes, is that okay?

So, may I begin with your address, please? (The CSR gathers the customer's information)

CSR: May I ask if you have ever replaced your furnace or air conditioner before?

CSR: Okay, thanks, may I ask why you've decided to replace your system now?

SAMPLE SCRIPT 2

CSR: What time frame did you have in mind for completing this project?

CSR: If you have just a few more minutes, I'd appreciate the opportunity to describe what our in-home consultative process will be.

CSR: Our technician will start by

asking you some questions, then ask you permission to do a brief survey of your home. During that time, he'll take some measurements to determine if your ductwork has adequate capacity and you have properly sized equipment. After that, he will be prepared to show you some options to consider. All this will take from 60-90 minutes depending on your questions. He'll stay as long as you wish.

CSR: I have an opening _____ or _____. Would one of those dates be good for you (both) or should we find another time?

In these examples we established some important things:

- ▼ The CSR asked permission to gather important information
- ▼ We know if they have ever had a system replaced
- ▼ We know why this is important now ... or NOT so urgent if that is the case
- ▼ The customer now expects the salesperson to inspect the ductwork as well as the equipment
- ▼ We set an expectation for a 60-90 minute or longer call.

Contrast this with how your appointments are currently set. I'm pretty sure there isn't much more discussed other than picking a convenient time. If that's the case, then you are just like everyone else coming out to give a bid, estimate, or quote. Yuk.

ONE-LEGGED VS. TWO-LEGGED APPOINTMENTS

For those new to sales, these terms refer to calls where the potential customer is either one person in a couple or both. A "couple" can be husband and wife, single-parent and friend, daughter-homeowner and father, or any combination of decision-makers

and others who are counted on by the owner for input.

In the past, it had been very common for the CSRs to insist “both decision-makers be present” to schedule an appointment. This was very common in many in-home sales industries. The reason is clear; when both “decision-makers” are present, the likelihood of making the sale on the first call is higher.

As consumers have become educated to this tactic, they have pushed back. The cautious homeowner will purposefully have one person there so they can gather information on the first call and then make their decision later, without a “pushy” salesperson lingering at the kitchen table and often refusing to leave until the sale is made.

Our industry is built on customer satisfaction and the resulting loyalty that produces repeat service, maintenance, replacement, and referral business. A single sale might be \$10,000 but the lifetime revenue could be twice or three times that. If we use abrasive selling techniques to make the immediate sale, a negative reputation would be the result and word would spread in the community.

In today's world, where consumer ratings are so common, a single negative consumer rating can have a lasting impact on the company's business.

WHAT CAN YOU DO?

As always, your CSR can simply tell the truth. Here is some language that has been time-tested, will improve your two-legger appointments, and increase your first-call close rates:

CSR: Thank you. One more thing. Most folks aren't aware that nine out of 10 existing systems are incorrect-

ly designed or installed. Usually, the equipment is oversized, shortening its life. Or the ductwork is inadequate or too leaky causing higher energy bills.

There are often hot and cold spots in the home as well as health issues for the family and more. This is a big decision that impacts your entire family.

Once you invest, the system typically lasts 15 or 20 years, so you live with it for a long time. Is there anyone you might want to invite to join you who may also have questions?

The final question, “Is there anyone else you might want to invite...”, following an explanation of the reason for it, will be heard by the customer who isn't so confident in his or her ability to gather the information needed to make the decision. I'd encourage you to consider scripting this language and coaching your CSR's to say it verbatim. It works.

CONFIRMATION AND AGREEMENT

This appointment setting process can take up to 10 minutes if customers are willing, or less if they're not. Either way, the CSR should summarize what was agreed to with an emphasis on their engagement in the call. The CSR can end the call by summarizing the key points:

CSR: Okay, great. So, Tom will be there this Thursday at 5:00 PM. He will ask you and anyone you might invite to the meeting what you want in a new system. He will survey your home with you if you can join him. Furthermore, he will go into the attic or crawl space to inspect the ductwork and equipment and take some important measurements. He will then share all of this with you. After that, he will pre-

pare some options for you to consider. All of that will take 60-90 minutes. Does that sound right to you?

This final statement essentially repeats what was said earlier, intending to reinforce the salesperson's activities and the customer's time commitment. Often, when this is well done, the customer will be impressed with your professionalism and decide not to call other contractors. At the least, if they do call others, your appointment-setting call will stand above the others in many positive ways.

FINALLY, THE EMAIL CONFIRMATION

These days, most of us are accustomed to email notices, reminders, and calendar invites. Your CSR should offer to send an email confirmation. Customers appreciate that. In the email, include the same language we've already discussed, along with some information about and a photo of the salesperson.

Setting the appointment is the first part of the sales process and it represents an important opportunity to differentiate your company before your salesperson even knocks on the customer's door. 



Tom Piscitelli has more than 40 years' experience in HVAC sales, sales management, marketing, and consulting. His articles have been published in trade magazines. He often speaks at industry events,

has produced three HVAC sales training DVD's, and he particularly enjoys bringing cutting edge training approaches to our industry (www.sellingtrust.com). Tom's most recent project has been co-authoring and publishing the book, Proposition Selling: How to Create Extraordinary Success in Business-to-Business Sales (www.propositionselling.com).



“Drop Cheek 90 into Split Zone System”

— Nate Miller, Campbell and Co., Yakima, WA

Beautiful in-house fabricated 90's on all sides for tremendous airflow. This Lennox *iharmony* zone system travels from the basement, up two floors to the attic, providing great airflow on all three levels of the home. The AprilAire filter provides tremendous air quality, as well as longevity to the system.

Nate Miller from Campbell and Co. is the October 2018 winner of our Photo-of-the-Month contest in the “Good” category, as voted on by the subscribers to the *High-Performance HVAC Today* (ncilink.com/HToday) magazine and visitors to the HVACToday.com website. He will receive a \$50 gift card.

You can too – submissions are always welcome. If you'd like to submit a photo for consideration, go to ncilink.com/POMSubmit and fill out the information as requested.

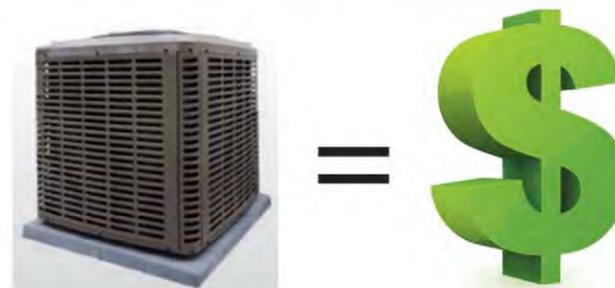
THE NOVEMBER CONTEST OPENS ON OCTOBER 8, 2018.

That gives you plenty of time to submit something in any of our three categories: **The Good**, **The Bad**, **WTH (What the heck)**.

Save 25-50%

on HVACR and ELECTRICAL EQUIPMENT Purchases

TURN YOUR SURPLUS AND USED HVACR AND ELECTRICAL EQUIPMENT INTO WORKING CAPITAL!



LAZCO CORP. Buys and Sells surplus HVACR equipment, chillers, boilers, rooftops, generators, transformers, and other equipment.

For a Prompt Purchase Quote Please Send Your Surplus List to Lazcocorp@gmail.com

Steve Lazar • 480-265-9980
www.lazcocorp.com

Send equipment requests to Lazcocorp@gmail.com

LAZCO

FOLLOW THE LEADER

Performance-Based Contractors are setting the pace and affecting evolutionary change in the HVAC Industry. As members of National Comfort Institute (NCI), YOU are the leaders and your competitors are being forced to play catch-up.



Do you want to keep them following the leader? Then think about this: you have direct access to a great vehicle to help you get your message to the industry: **High-Performance HVAC Today** magazine.

We're looking for writers to lend their voices to the movement. No one knows the ins and outs of implementing performance into an HVAC contracting company better than you.

Typical article topics could include:

- How do you get your technicians on board with measuring and testing airflow on every call?
- What obstacles do you face selling air upgrades and how do you overcome them?
- How do you price your duct renovation and air upgrade projects?
- What advantages do you have using the ComfortMaxx® software suite?
- Explain how you market your high-performance services and share some success stories
- Discuss how you recruit and train new field service and installation people

- What tools and instruments are important and why?

If you are interested in submitting an article idea, just go to hvactoday.com/contribute/. We will contact you to get the ball rolling.

If your article is published, you'll receive five FREE printed copies of the issue in which it appears.

HAVE YOU SCHEDULED YOUR TRAINING YET?

Your membership provides you access to some of the most cutting-edge training programs from both the technical and business, sales and marketing perspectives.

Right now, NCI is fully underway with its Fall Training schedule and classes are filling up fast.

As members, you have the opportunity to use NCI Bucks to help offset the costs of training. If you participate in TIPP (Training Incentives Partnership Program), you are earning Bucks based on the purchases you make from NCI Partner Vendors.



Those Bucks are deposited into your training account. They never expire and can be used to pay for any live NCI training class, online training, or conference. Click ncilink.com/bucks to learn more about them.

With that in mind, now is the time to enroll into NCI's Fall classes. Check out the NCI class schedule by going to ncilink.com/ClassSchedule.

For more details about each class, just point your web browser to ncilink.com/train. Or you can call 1-800-633-7058 and ask to speak to a Customer Care representative.

NCI WELCOMES A NEW MEMBER OF THE TEAM

We'd like you to join us in welcoming a new member to the NCI staff: Kate Kelly. Kate is our new Events Manager and she joined the staff on September 10th. You might recognize her from several years ago when she was part of the editorial staff at *Contracting Business* magazine and *HVAC-Talk.com*.



Please be sure to say hello to Kate at the **High-Performance Summit 2019** in Orlando, FL, April 15-18, 2019.

MEMBER-ONLY MOBILE APP IS FREE

AirMaxx™ is NCI's member-only free mobile app. It is included in all **ComfortMaxx™** subscriptions. It's available for both Android and iOS phones.

AirMaxx lets you to show homeowners the "airflow grade" for their HVAC systems. All you need is to collect some nameplate information, then do four static pressure measurements, and input the results into the app. The app does all the calculations and produces customer-centric graphs and wording for you to show them.

This helps customers better understand what is happening with their comfort system and can help you close more



duct renovation and air upgrade sales.

This app doesn't require a data plan – it is all resident right on your phone. It has a very simple and clean interface and is easy to use.

For more information click this link: ncilink.com/AirMaxx.

Advertiser Index

Dwyer Instruments, Inc. | www.dwyer-inst.com 2

High Performance HVAC Today Magazine | HVACToday.com/subscribe 29

Lazco Corp. | www.lazcocorp.com 27

MyHomeComfort.org | MyHomeComfort.org 4

TSI, Inc. | www.TSI.com/comfort 5

To Subscribe to High-Performance HVAC Today:

ONLINE: Visit HVACToday.com/subscribe for a FREE digital subscription.

PRINT: 1 year/\$72; single copy \$7. Canada: 1 year/\$92; single copy \$9. Payable in advance with U.S. funds. Prepaid subscriptions may be sent to: High-Performance HVAC Today, PO Box 147, Avon Lake, OH 44012. Phone: 440-949-1850; toll free 800-633-7058; FAX 440-949-1851, or visit HVACToday.com/subscribe to order online.



HIGH PERFORMANCE HVAC TODAY™

Publisher
Dominick Guarino

Editor-in-Chief
Mike Weil

Art Director
Connie Conklin

Online Development Director
Brian Roseman

Sales Manager
Dave Kenney

Circulation Manager
Andrea Begany- Garsed

Editorial Assistant
Marge Smith

Email us at contactus@hvactoday.com with your comments and questions.

Subscribe to High Performance HVAC Today

High-Performance HVAC Today magazine highlights news, commentary, and technologies that impact performance-based HVAC contractors and their customers.

Visit our website to sign up for a FREE digital subscription or to order a printed subscription for one year (12 issues). \$72.00 US, \$92 CA



Go to <http://ncilink.com/subscribe> or scan this QR code to sign up online



1-800-633-7058 • www.HVACToday.com

An Open Invitation To Manufacturers: The Future Is Here And Now



Dominick Guarino is publisher of HVAC Today magazine and CEO of National Comfort Institute, Inc. He can be reached at domg@ncihvac.com

If you're in charge of sales or marketing for one of our industry's major equipment manufacturers, you are probably seeking ways to differentiate your company's position in this highly competitive market.

The HVAC Industry has reached the point where we've squeezed every possible EER and AFUE out of equipment -- without reaching the point of diminishing returns.

So what's next? What will you do to stand out from the pack? To answer that question, it's important to recognize a phenomenon that's been steadily building for many years. Government and regulated utilities are moving towards meter-based efficiency verification. It's where the rubber meets the road, as the meter doesn't lie.

Affixing an equipment label with a factory-tested efficiency rating will no longer be enough. This new direction will include additional verifi-

an important issue all manufacturers should be concerned about: **Even though your brand sticker is on the "engine," your brand reputation will be associated with the entire car**, regardless of whether you had anything to do with the transmission or the wheels.

It's only a matter of time before system performance becomes the new bar for our industry. It will soon be demanded by consumers as well.

As a manufacturer you'll have two choices: The first is to stick your head in the sand, and proclaim it's out of your control, since you don't install the system. This choice would convey lack of accountability, since it's **your** authorized dealers installing **your** "engines." It wouldn't play well in this heightened era of environmental responsibility -- not very good for a company's image.

The second and better choice, is to be proactive and develop a network of indoor comfort professionals with the training and the tools they need to make the entire system work correctly.

Imagine building a network of very skilled "High-Performance Dealers" who are trained and certified to test, diagnose, and offer the right solutions. These dealers would document

system performance, and provide a delivered efficiency rating.

What if your dealers could certify a "(Your Brand Name Here) High-Performance System" that meets a minimum standard. What if the system was verified and documented by software monitored by a credible third party?

The good news is this training, support, and software exists now. Over the past two decades, National Comfort Institute has developed a turn-key system your organization can plug into that includes the training, certifications, support, and software to get started right away.

cation of how a "system" performs once installed in a home or building.

This may seem unfair, since as a manufacturer you have little control over how the equipment performs once it leaves your factory and is connected to the "rest of the system." Unfortunately it's your brand name on the box, and you'll be looked to for answers as to why the system is performing at a lower efficiency than advertised.

A good analogy compares HVAC "systems" to automobiles where the equipment is the "engine," the duct system is the "transmission," and the grilles and registers are the "wheels." But there's

THE BETTER CHOICE IS TO BE PROACTIVE AND DEVELOP A NETWORK OF INDOOR COMFORT PROFESSIONALS WITH THE TRAINING AND THE TOOLS **THEY NEED TO MAKE THE ENTIRE SYSTEM WORK CORRECTLY.**



Your Support Team on Your High-Performance Contracting™ Journey

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

Membership Options: Turbocharge your membership with added learning opportunities and financial incentives.	High Performance HVAC Alliance	Learning Excellence Premium Upgrade	Learning Excellence Live Upgrade	Learning Excellence Online Upgrade	Membership
Unlimited Toll-Free Support	✓	✓	✓	✓	✓
High Performance Talk Discussion Forum	✓	✓	✓	✓	✓
Find-A-Certified-Professional Lead Generator	✓	✓	✓	✓	✓
i-NCI: Mobile-Friendly Technical & Sales Tools	✓	✓	✓	✓	✓
Hundreds of Technical & Marketing Downloads	✓	✓	✓	✓	✓
Members-Only Newsletter	✓	✓	✓	✓	✓
Article Library Featuring Technical & Business Articles	✓	✓	✓	✓	✓
Live & Online Training and Conference Discounts	✓	✓	✓	✓	✓
Member Rewards NCI Training Bucks on Purchases	15%	15%	15%	15%	5%
Training Incentive Partner Program Dollars	Maximum	Maximum	Maximum	Maximum	✓
NCI Online Store Discounts	✓	✓	✓	✓	✓
ComfortMaxx Air™ - Airflow Testing Software	✓	✓	✓	✓	✓
Unlimited Online University Courses	✓	✓	✓	✓	✓
Unlimited Webinar Access	✓	✓	✓	✓	✓
Bonus Annual NCI Training Bucks Earned	\$4200	\$4200	\$4200	\$1200	✓
ComfortMaxx Pulse™ - Air & BTU Testing Software	✓	✓	✓	✓	✓
ComfortMaxx Verify™ - Full System Testing Software	✓	✓	✓	✓	✓
Free Print Subscription to High Performance HVAC Today	✓	✓	✓	✓	✓
One Paid NCI Summit Conference Registration	✓	✓	✓	✓	✓
EGIA Premium Membership	✓	✓	✓	✓	✓
70% OFF 5-Day 2019 Success Week Bootcamp	✓	✓	✓	✓	✓
Monthly Investment:	\$999	\$750	\$450	\$450	\$100



Scan this QR code or call NCI Customer Care to learn how NCI Membership can take your HVAC business to the next level!

Join NCI Today!

HIGH-PERFORMANCE TESTING SOFTWARE

ComfortMaxx™

Lead Generation | Diagnostics | Sales | Accountability

Generate high quality leads and impress your customers with professional and easy-to-understand reports about their comfort systems. This will help differentiate your company as a performance-based leader in your marketplace.

- Close more sales
- Create consumer-friendly visual reports
- Improve testing accuracy
- Eliminate math errors
- Eliminate handwriting legibility issues
- Easily access customer data, equipment inventory and testing history

NOW AVAILABLE!
New AirMaxx™ companion mobile app included at **NO EXTRA COST**

NCI
National Comfort Institute, Inc.



CALL CUSTOMER CARE AT 800-633-7058 TO GET STARTED TODAY!

Experience “LIGHTNING Mode”!

We are excited to announce a brand new ComfortMaxx feature called “Lightning Mode.” Lightning Mode employs a simple switch that allows you to view ComfortMaxx screens showing the bare minimum fields needed to perform testing and diagnose and rate systems at lightning fast speed.

Testing just got easier!

