spring 2025

HVAC

Kyle Hatch
family & training

2025 RECAP: AWARDS & GALA

AI: *the voice of the future?*

the 7 people you meet at **AHR**

tech talk: *industrial dehumidification*
condensate neutralization

HVAC Tech Support

HVAC ServiceTitan NATIONAL CHAMPIONSHIP
Powered by TRANE

Congratulations!!

Welcome to the spring 2025 episode of HVAC Tactical Magazine.

A voice of the people.

When we rolled out the very first issue of the magazine, we had a vision to bring the voice of the trenches and the movement to the mainstream.
A magazine for the trenches, by the trenches.

Our goal is simple.

- Provide valuable, relevant content that our fellow tradesmen and tradeswomen in the trenches can appreciate.
- Build awareness of the movement happening on social media and highlight individuals making an impact in the HVACR community.

Content

If you or someone you know has great content that you'd like to see published in the magazine, feel free to reach out. We're always open to chat!

Email us at magazine@hvactactical.com

@hvactactical

Be sure to follow us on social media and get plugged into the community!

Thank you for your support and welcome to the movement!

Ben Poole • Founder • HVAC Tactical • "It's A Mindset"

the 2025 hvac tactical awards & gala recap! 08

relive the action from orlando fl

kyle hatch family & training 20

wrtten by Dan Vastyan
additional photography by Jordan Newman

spring 2024

the HVAC Tactical magazine is brought to you by

THE UNSTOPPABLES

Ben Poole
HVAC Tactical Founder

Ben Poole is an entrepreneur and 3rd Generation HVAC professional. He founded HVAC Tactical in 2018, the HVAC Tactical Awards in 2020 and the HVAC Tactical Magazine in 2023.

His goal is to simply elevate the industry, reignite the passion for the trade and motivate others to take on the personal responsibility of mastering their craft.

Giana Brucella
Editor-In-Chief

Giana Brucella is a passionate writer and editor, and has been in the marketing field for the last seven years.

Her keen eye for detail and organization skills help keep the HVAC Tactical magazine looking sharp, clean, and without typos.

Matthew Pryce
Managing Editor

Matthew Pryce is a published author, professional musician, innovative digital marketing maven, and rabbit & traditional husband.

His work has appeared in the Sports Illustrated, The National Review, the NY Daily News, various HVAC publications, and of course, the **HVAC Tactical** magazine.

He sits on the HARDI marketing council, and handles marketing/communications for Centrotherm Eco Systems, a plastics manufacturer located in New York.


adidas
adidas
adidas

Ask A Jerk #3

Wow! Did you catch the HVAC Tactical Awards show this year? This really is turning into the Grammys of our industry. And the guy putting all of this together (What's his name? Ben-something?) is amazing; good job, Ben.

You know, this year it took place at SeaWorld, and it was bigger and better than ever! Do yourself a favor and mark your calendar to get tickets for the next one. The filled swag bag was even a VetoProPac!

Dear Jerks,
First off, I love the new intro that you did on your podcast; nice way to freshen it up. So, now that A2L refrigerants are here, many of my customers have heard that they are flammable. What's the best way to get them to understand that their house isn't going to explode when they turn on their A/C?
Thanks guys,
Boom Boom

Dear Boom,
Good question, because there is still a lot of confusion about A2Ls, like R-32 and R-454b. R-410 is an A1 refrigerant, as classified by ASHRAE, and A2Ls are only slightly more flammable. A1 refrigerants will burn when exposed to an open flame but would not maintain a flame on their own. A2L gases would maintain a flame but still would not ignite unless exposed to an open flame or surface temperatures over 1472 deg.

All three of these refrigerants contain R-32, the flammable culprit, including R-410a at 50%, and R-454b at 69%. The bottom line is that these gases will burn in the right conditions, but not without direct exposure to a high energy ignition source or direct open flame.

What up, HVAC Jerks,
Hey, I started my company about a year ago, and it's going pretty well so far. I even hired my first two employees this year. My problem is with my taxes. Holy smokes, was I a mess this year, and my accountant thinks I missed a whole lot of deductions. What's the easiest way to keep track of it all without spending a lot of money?
Had to pay again

Dear Had-to-pay-again,
As a new business owner, keeping track of what you spent is just about as important as how much scratch you brought in. Paying taxes is bad enough, but paying more than you should is just a waste of your hard-earned money. You need to keep track of all your receipts for the entire year.

One of the simplest things you can start with is downloading an app on your phone that keeps track of it all for you. Look at something like "Shoeboxed" in the app store that has all kinds of ways to make keeping track of your expenses as easy as your helper falling through another ceiling. You just enter the receipt in your phone whenever you buy something, then forget about it; you don't have to worry about which pile you threw it in. Trust me, start with this, and next tax season will be much easier.

Dear soft-hearted Jerks,
I know we probably all have the same story, but my wife says I work too much, and I'm starting to worry that I'm headed for a divorce. I try telling her that I have customers that depend on me, but she's tired of me never being home. What should I do?
Doghouse Dan

Dear Doghouse,
You need to fix this now before you get an alimony bill. We've all been there, working 80 hours a week, all hours of the day when your customers have no heat, or whatever. The bottom line is this: you are in control of your life, not your customer(s). Just because they called now doesn't mean you have to go now; hell, it doesn't even mean you have to talk to them now. Set some boundaries, cowboy!

You need to schedule some family time that can't be interrupted for anything except REAL emergencies, like the building is on fire. First, stop answering your phone all the time. Shut your phone off during certain hours, or better yet, get an answering service. You'll be surprised at how much that will improve your business and your life.

I know you feel like if you don't go now that you'll lose the customer or the job, and that you need the money.

Trust me, you're not going to make any less money, but you will have a happier home life. Get in the habit of scheduling your service calls for when it makes the most sense for you and your business. Just a little bit of planning will have you wasting less time and being more efficient overall. You are the boss—act like it.

So, send your questions to theboys@thehvacjerks.com, listen to The HVAC Jerks podcast, and get your tickets early for the next HVAC Tactical Award show. Have a good week; Peace!


blue collar goes black tie
FEBRUARY 9th • ORLANDO FL
HVAC
TACTICAL
FIFTH ANNUAL AWARDS & GALA
SeaWorld
What a night in
FIFTH ANNUAL AWARDS & GALA
Relive all the action on YouTube:
HVAC
TACTICAL
AWARDS


Orlando!
GE APPLIANCES
a Haier company
2023
HVAC
AWARDS

Orlando FL

The 5th Annual HVAC Tactical Awards & Gala

That was a special night, folks.

All of the preceding HVAC Tactical galas & awards spectaculars have had their special moments.

But 2025 - this show, with it's vibes and energy and cameraderie, and more - this one was the one that cements the HVAC Tactical award as the cornerstone event of the tradeshow season.

From the electrifying red carpet / cocktail hour, through the food, and some of the most earnest and sincere speeches ever made from the HVAC Tactical stage - 2025 will hold a special place in the annals.

From the first moments walking through the gates at Sea World in Orlando, FL - it was pretty clear that this event was going to new places.

The HVAC Tactical Awards has become a de facto family reunion of sorts, and the red carpet section is the perfect time for handshakes, hugs and catching up with old friends - many of whom last saw each other at last year's awards show.

This type of spirit is infectious, and from the first nanoseconds of the event - everybody is bubbling with enthusiasm, excitement, and anticipation.

Whether you're stopping in to do a live-streamed interview or standing atop the spinning selfie-camera thing (I assume that spinny thing has a name, but I definitely don't know what it is) - the soundtrack is laughter and exuberance.

Before long, everybody's hitting up the bar befo finding their way to their tables to get some grub, and watch the actual awards unfold.

Start to finish, the ceremony was a seamless celebration of the trades. From hilarious introductions, to the sincerest of speeches, this 2025 year marks a big step forward for HVAC Tactical and the trades, overall.

Y'all showed out.


AIR&WATER
SOLUTIONS
HVAC
TACTICAL
AWARDS
HOSTED BY
VETO PRO PAC
TOOL BAGS THAT WORK
2025
GE APPLIANCES
a Haier company

re


GE APPLIAN
a Haier company
AWARDS

2025 *NOMINEES* & WINNERS

A huge shout out and thank you to all the nominees and winners of the 2025 HVAC Tactical awards!

The complete list is below! Be on the look-out when the nomination period begins, and you may just see your favorite technicians, installers, and social media personalities on stage next year in Las Vegas!

• • •

Congratulations not only to all the winners, but also to everyone working hard in the trenches every day.

LADY OF THE TRADE	🏆 **Rachelle Martins** @hvac_install_her	• Rachel Samala @missminisplit	• Megan McIntosh @mechanicalenvironments
BEST SOCIAL CONTENT	🏆 **Francisco Pastor** @climasterlatino	• Jacob Jackowski @bluecollarbuiltllc	• Tim De Stasio @timdestasiohvac
HIDDEN GEM	• Chris Pohl @chris4hvac	• Austin Taylor @hvacstinz	🏆 **Jon Esquival** @austinstarservices
HYDRONIC HOTSHOT	• Noel Sicard @rack_it_up_2024	🏆 **Dylan D'Amato** @nextgen_plumbing_heating_nj	• Mitch Sherman @shermanwi_plumber
INFLUENCER OF THE YEAR	• Alex Ivey @hvac_tips1	• Jessica Bannister @hvacjess	🏆 **Tony Mormino** @tony_mormino
LIFELINE	🏆 **Ilija Martinovich** @the_hvac_foodie	• Holden Shamburger @hvactime	• Mike Cameron @mc.hvac
MENTOR OF THE YEAR	• Chris Stephens @hvacrvideos	🏆 **Tim De Stasio** @timdestasiohvac	• Holden Shamburger @hvactime
PICTURE PERFECT	• Forest Hill @foresthill_hvac	• Shawn King @kiingshawnhvac	🏆 **Joey Yepez** @hvackombat
PODCAST OF THE YEAR	🏆 **Brett Wetzel & Kevin Compass** Advanced Refrigeration Podcast	• Rhydon Atzenhoffer HVAC R & D	• Pat Finley Commercial Kitchen Chronicles
SERVICE TECH	🏆 **David Waldon** @hvac_slim	• Jason Norman @hvac_jay604	• Frank Lagalante @frankieloveshvac
YOUTUBE	🏆 **Curtis Harrison** @hvac_guy_1	• Rick Dirmeyer @hvacsurvival	• Stephen Smith @everythinghvacr


GE APPLIANCES
a Haier company
AIR WATER

2025
Lifetime Achievement
Award Winner

Dan Holohan

2026

back to where it all began

FEBRUARY 1st

las vegas nv

SIXTH ANNUAL AWARDS & GALA

HVAC TACTICAL AWARDS

FAST-STAT

HVAC WIRING EXTENDER

Add or upgrade HVAC equipment
without installing new cables

www.FAST-STAT.com

Assembled in the U.S.A.

NEW AND IMPROVED

Short-Finder Tool

MODEL: *ZSPRT*

- **Locates 24V Shorts**
- **Indicates 3A or 5A**
- **Auto-Resetting**
- **Durable & Compact**

Zebra Instruments™

DURO DYNE®

TRADEFOX®

NEW!

P/N: DUROHNGR

The Duro-Hanger™

gives installers an adjustable hanging bracket for steel joists. UL Certified, this adjustable system allows for traditional threaded rod or threaded studs with cable hanging systems.

MADE IN USA

c UL us LISTED

SCAN FOR VIDEO DEMO:

NEW!

P/N: BTG-LBP

The Lock Box Pro

is the only thermostat guard on the market that can be opened with key or combination, making it more convenient for techs and facility managers to keep thermostats secure.

kyle hatch'

's world: family & training

Kyle Hatch (@HVAC_Hatch) is a father and a second-generation heating and cooling professional in southeast Connecticut. He's an influencer, an oil-fired equipment specialist, an HVAC trainer and soon, a podcast host. More on that later.

Hatch's parents, Rick and Wanda, founded R&W Heating in 2004, but Hatch took a round-about path into the family business and the mechanical trade. He worked in autobody for a few years before attending trade school and joining his dad in the field in 2007.

The company's first employee was Hatch's cousin, Greg, and today it's 16 people strong. Hatch is the company's field supervisor. His wife, Lindsay, works in the office.

"It's a real family company, and we're growing," he said. "Well, the family and the business are both growing."

In August, he and Lindsay welcomed their son, Walker, into the world and gave their older son, Raylan (6), a little brother.

"It means we're back in diaper mode," Hatch said. "Having a new baby in the house gobbles up a lot of time, but I've never seen a baby that laughs and smiles as much as Walker."

In the rare event that Hatch gets some free time, he likes fishing or riding quads at the family cabin in Vermont. But these days, with a new baby, time is scarce. After the family, Hatch's biggest priority is self-education.

"Even my free time is work related," he said. "I tell other technicians and apprentices that you can't learn everything in the field. On-the-job training is valuable, but to excel, you need to apply yourself after hours."

Since opening the business, Rick Hatch has always strived to incorporate new products and technology into the business. They use cutting-edge technology to increase efficiency and comfort, making their offerings stand out. This includes new boilers, circulators, heat pumps, etc., and it all comes with a slight learning curve. R&W technicians are encouraged to learn, and Hatch is team leader of that effort.

BioFuel and A2Ls

In 2025, Hatch sees two big needs for training and education based on the equipment they install: adaptation to biofuels and A2L refrigerants.

"Currently, there's a five percent biofuel blend mandate on fuel oil in our territory," he explained. "A lot of 20 percent blend is already being sold, but we expect 20 percent to be mandated

before long. That's good change, but as with all change, it can cause some challenges. Nothing that training and education can't overcome."

In Hatch's experience, switching to biofuel blends can cause leaks in old tanks. There's speculation that biofuel consumes corrosion in old steel tanks, uncovering pinhole leaks. He also thinks it may loosen sludge and buildup and distribute solids throughout the fuel system, plugging up components.

"We're trying to get customers to be proactive about tank replacement," said Hatch. "Steel tanks only have a reliable service life of 20 years, so we don't offer them anymore.

This past year, we replaced about one tank per week, installing polymer tanks made by Roth. It seems like tanks built between 2006 and 2008 are especially susceptible. The older tanks, built in the 70s and 80s, seem to hold up to biofuel better than newer ones. I can only imagine that the difference comes down to steel quality."

Hatch is also preparing the R&W crew for the coming transition to A2L refrigerants, both R-454B on unitary equipment and R-32 on ductless heat pumps.

"Like everybody else, we're waiting for A2L equipment to be released, but we're preparing for it in advance," he explained. "Our techs already have new tools for A2L refrigerants. As soon as manufacturers and suppliers offer training on A2L equipment, we'll be there. We do a lot of training with Sweeny Rogers Garrity, our heat pump rep, and we're looking forward to going to Fujitsu's new training center in New Jersey. I expect that to start in Q2 or Q3."

Show Season

Hatch went into the new year excited about upcoming trade shows. He sees them as a great place to spend time with industry friends, discover new products and, yes, catch some training.

Hatch flew down to Orlando several days before AHR Expo and attended Bryan Orr's HVAC/R Training Symposium, which took place February 6 and 7.

"The Symposium was incredible," he said. "There were so many good speakers there."

At the HVAC Tactical award ceremony on February 9, Hatch and Matthew Pryce co-presented the Service Tech of the Year Award, which was received by David Waldon (@HVAC_Slim).

At the Expo itself, one of Hatch's favorite events was the live "Community over Competition" boiler build in the Nibco booth.

"Lindsay and the boys joined me in Orlando this year," said Hatch. "We have some family in Tampa. We rented an Airbnb with a pool, so they drove up to Orlando and hung out for a day."

"I'm also looking forward to the Eastern Energy Expo, which is May 18 through 21, in Atlantic City, NJ this year," he continued. "This will be my first time attending EEE in Atlantic City, and I'll be involved with something really fun."

Hatch will be joining Travis Abaire (t.a.p.plumbingandheating) George DeJesus (@georgetheplumber) and Mike Flynn (@Flynnstone1) for their own Boiler Build event on the trade show floor. He and the other influencers see it as a great way to share some of the experience they've gained over the years.

Somehow, it always comes back to education for Hatch.

Doubling down on training

Company growth is one of Hatch's priorities, but the limiting factor is the availability of trained technicians. No surprise there.

This frustrated him for a few years before he committed to taking matters into his own hands by founding Tech to Tech Training Center of New England (@tech2techhvac).

"We decided to build a serious in-house training facility at our shop to further develop our own team's capability. When it started, the training opportunities were limited to our team. It's more than that, now."

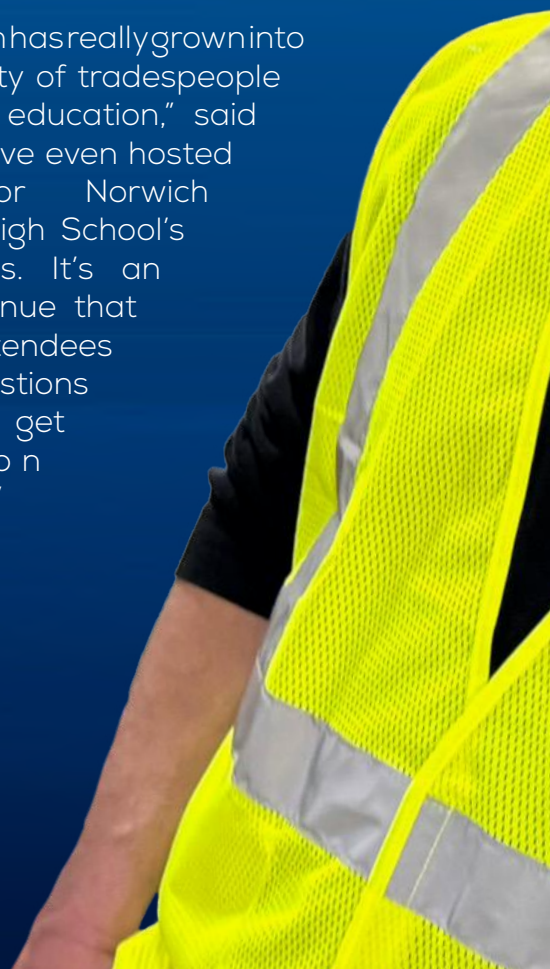
Unlike factory training, Tech to Tech focuses on different types of equipment. Yet, it's different from a technical school because most of the instruction is specific to the brands that R&W Heating installs.

"As a company, we don't hop from brand to brand," said Hatch. "That makes it easy for us to focus on the equipment we use."

"The training room quickly exceeded our original vision," he continued. "So, we invited other contractors to send their technicians for training."

The word got out. Almost immediately, overwhelming support came in from various places. Thames Valley WinnSupply, F.W. Webb, and many reps showed interest in expanding Tech to Tech. They sent products and offered their trainers. Taco, Centrotherm, Caleffi, Webstone, New Calgon, Inaba Denko and others donated material or equipment. Salvaged equipment from retrofit projects also became training pieces. The venue even has an operational radiant and snowmelt system.

"Tech to Tech has really grown into a community of tradespeople who value education," said Hatch. "We've even hosted events for Norwich Technical High School's HVAC class. It's an intimate venue that allows attendees to ask questions and get hands-on experience."




AIR & WATER
SOLUTIONS
HVAC
TACTICAL
2025 AWARDS
HOSTED BY

Some of Hatch's Instagram followers have inquired about online training. So far, Tech to Tech's training has only been in person, but that's going to change.

Hatch and his apprentice, Allen (@fit_apprentice_), are working on installing a podcast booth in the training center. They want to begin filming and live-streaming content for YouTube.

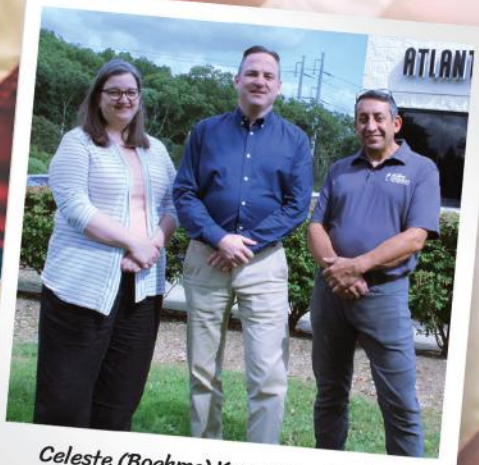
"We're making an impact in New England, but I really want the information provided here to be available across North America," said Hatch. "When we brought Walker home from the hospital, it sidelined the podcast project, then we rolled into heating season.

The podcast is definitely on the horizon, so stay tuned!"

Red, White & Blue Collar

Since 1963

Hilary Boehme & Thomas Dituro, Founders



Celeste (Boehme) Kopp, Greg Boehme & Tom Dituro, Executive Team

It all started with our founders using their manufacturing and engineering knowledge to drum up any business they could. Since 1963, it's been our mission to construct UV disinfection products from stainless steel and the highest quality materials. Our family-owned business has the stability to serve your HVACR needs for decades to come, providing each application with the optimum design.

SINCE 1963
ATLANTIC ULTRAVIOLET CORPORATION®

Call: (631) 273-0500
Email: Sales@AtlanticUV.com
Shop: AtlanticUltraviolet.com
Learn More: Ultraviolet.com

Made in the USA
FROM U.S. & IMPORTED PARTS

Germicidal UV Equipment & Lamps • Water / Air / Surfaces • Manufacturers / Engineers / Sales / Service

“Too many people look around comparing themselves to others. All that matters is you become the best version of **yourself**, **that’s when you’ll truly find happiness”**

Daniel Provins

47 • East Sussex, UK

years in the trade

24

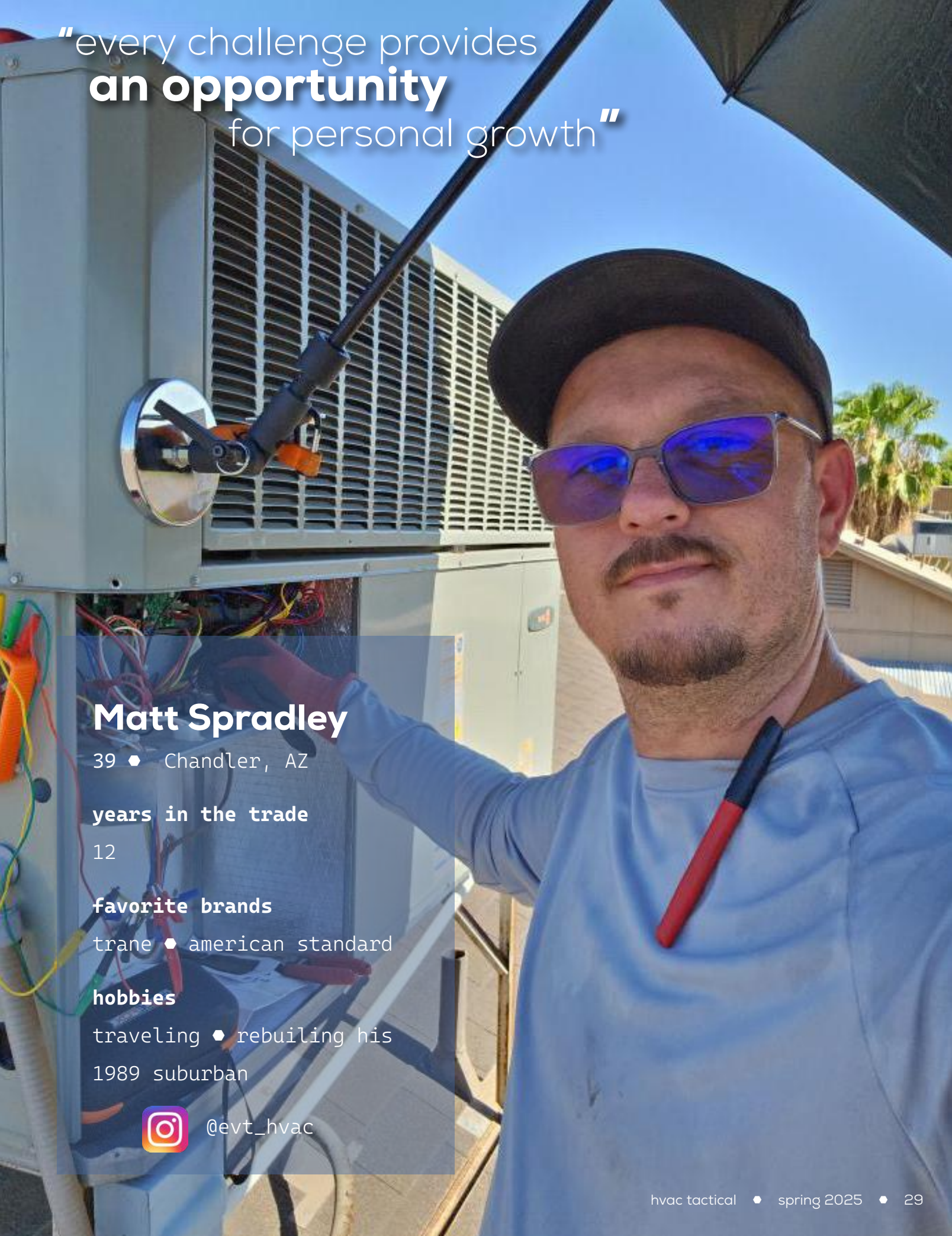
favorite brands

veto • yellow jacket • fieldpiece • makita

hobbies

drawing • tattooing • music

@temcon_air_conditioning



"every challenge provides **an opportunity** for personal growth"

Matt Spradley

39 • Chandler, AZ

years in the trade

12

favorite brands

trane • american standard

hobbies

traveling • rebuiling his 1989 suburban

@evt_hvac

hvac/r: a broad topic

greg crumpton

Many people are quick to think one of two things when they hear the phrase HVAC; one is an attic, the other, a basement/crawlspace.

My last article in the HVAC Tactical Magazine was on the science of indoor cannabis cultivation and many of the environmental conditions that must be met and maintained to maximize the yield of cannabis per square foot of growing space. That is merely one example of how broad the commercial side of the HVAC/R industry is.

Having been in the industry for approximately 43 years as of this writing, I can tell you that I have never been paid to work on an HVAC system in an attic or a basement. I have the utmost respect for my fellow brothers and sisters who are in that vertical of the HVAC market; my point here is that this is one and only one sector of a very voluminous industry.

One of my personal favorite vertical markets under the HVAC moniker is the Data Center and Mission Critical arena. Having spent the bulk of my career serving this part of the market, I have always enjoyed the mandatory continual learning that this sector has required of me. More on that later, but for now, think about something as simple as the smartphone. It is either in your hand as you are reading this or very near to where you are.

When most folks think of HVAC, they think air conditioning – making a room cooler by cooling the air temperature. Now, think about the computer equipment in a data center. It is literally producing tons of heat. Our goal in a data center environment is not to cool the room, but more so to reject the heat being generated by the compute taking place within those sleek black cabinets that house all the I.T. equipment. It is a simple change of thought process, and one that makes maintaining the environmental conditions with the data center easier to think through.

Stepping back in time a bit, the first "modern day computer" was the acclaimed ENIAC (Electronic Numerical Integrator and Computer), dating back to 1946. This machine was built and served as the world's first modern-day computer due to its use of electronics in calculations versus electro-mechanical functionality. More details on the entire timeline of computers can be viewed here: https://www.computerhistory.org/timeline/computers/.

OK, you ask, "What's the big deal about computer rooms and data centers and why should we care in regards to HVAC?" It all stems back to November 30, 2022, the day that the world first learned about a new platform called ChatGPT. We have never been the same since that fateful day only a few years ago. Data center "workloads" of compute have been on "go" since that day. Artificial Intelligence, as you see, hear and read about daily is driving heat generation within data centers to an all time high.

Now, I want to step back to the continual learning thought I mentioned a few paragraphs ago. For many years, the cooling of the data center was not that much different from, say, "cooling an office building or any other structure." Air moving across a cool coil extracted the heat and moisture from the air stream, but the warm air (return air) was steadily increasing in temperature.

We, as an industry, went through many iterations of keeping up with the added computer work loads that were transformed into hotter and hotter return air temperatures until we could no longer maintain the proper air temperature of the rooms. Keep in mind that

the "room temperature" is the actual supply air temperature that enters the front of a server, switch and any other conventional I.T. device. So, what to do? Bring on the liquid cooling. Most folks immediately think of liquid in a data room, which is our future.

Liquid, meaning chilled water and or liquid refrigerant, offers us the best way to have very superior heat rejection capabilities versus removing heat from an airstream. Think about pumping cool liquid at 65 (must be above dew point to avoid condensation) to a processor on a circuit board within the computer assembly.

It goes through a small heat exchanger that extracts the heat directly from the source, that source being the electronic chip that is actually doing the computing. It is a straightforward process that must be executed at a surgically tactical level.

While data centers and computer rooms, MRI's and other realms within the mission critical world of Heat Rejection make up only a portion of your routes that you may want to specialize

in, they are an ever-growing percentage of your opportunities.

The overarching theme of my message here is: Don't settle into your spot within the HVAC/R universe until you poke and prod a bit. Ensure you are working on the type of equipment you want and serving in the environments you choose to be in, rather than settling for what or where someone led you to. Read, learn, share, study and dive into the "other sides" of our formidable industry.

about the author

Greg Crumpton is currently a Vice President at Service Logic. Since 2014, in his current role, Greg drives Service Logic's vertical market penetration in the mission critical segment and oversees EH&S across Service Logic and its operating units.

Greg joined Service Logic in 2014 with the sale of AirTight Mechanical the company he founded and led since 1999. As founder and president, he built a remarkable company that had a proven record and expertise in serving the mission critical market throughout the Southeast and is a foremost expert in mission critical applications, facilities, and HVAC.

Active with many trade associations and groups, Greg considers himself a Dot Connector, People Promotor, Technology Enthusiast, and a Guide to the Next Generation of Skilled Trades Workers.

As a published author and advocate for self-education and awareness, Crumpton invites you to purchase and read his book, deepKnowledge and explore how you are in control of your journey.

gregcrumpton.com | deepKnowledge.me

Liliana Morales

42 • Chicago, IL

years in the trade

2 1/2

favorite brands

milwaukee

hobbies

painting

@lilthehvacartist_

"you only fail when you **stop trying**"

National Compressor Exchange

Remanufactured Reciprocating & Screw Compressors

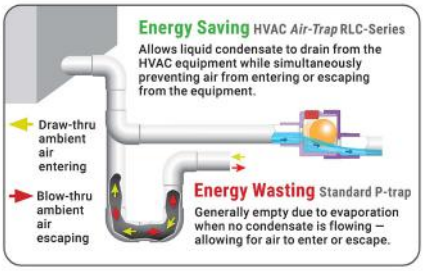
Great prices & expansive inventory
Always Remanufactured, Never Rebuilt™

+1-800-225-7381
info@nationalcompressor.com
www.NationalCompressor.com

HVAC Air-Trap™

WATERLESS HVAC CONDENSATE TRAPS

- Reduces trap height requirement by 1/2 (*As show in image on the right*)
- Prevents air leakage
- Prevents potential freezing and breaking (*operates dry*)
- Meets 2024 Mechanical code for condensate traps
- Predesigned – eliminating field-designed errors



Designed and manufactured by
DES CHAMPS Technologies®
2 Nikki Lane • Natural Bridge Station, VA 24579
Phone: 540.228.1967
info@deschampstechnologies.com
Instagram: @trapqueen_deschamps
waterless-trap.com
deschampstechnologies.com

ICC-ES Evaluated

For more information scan QR-code

There is nothing like SIGMA CAP

Customize any way, any size.

Mix and match sizes to create desired capacitor size.

Use individually.

Fan and run sizes available.
Duals available in 25/5 & 25/7.5mfd

OR

Use pod system to stack.

Stack ANY sizes together. Build hermetic side first, fan side second. Use chair terminal for additional terminals when needed.

855-266-5101

COOL AIR
Elevating the Trades

RECOMMENDED BEST CHOICE

IN THE TI


GOLD EAGLE
SERVICES
• COOLING • HEATING • AIR QUALITY
watch the latest episode
gold eagle services
@goldeagleservicesatx
HVAC
TACTICAL

RENCHES

go to the jobsite
with the
top professionals
in hvac/r

HVAC TACTICAL

please subscribe!

NEW EPISODES EVERY MONTH

STARTEC

Calgary AB

Norbec, Bohn, Copeland, KE2, and other components become a 12x14' combination cooler/freezer

submitted by ty smith // @icemaster_ty

THE EH-TEAM

ELEVATE YOUR TRADE

At the heart of Canada's trade sector is a group of visionaries affectionately known as the **EH-TEAM.** Their primary Mission is to "**ELEVATE YOUR TRADE**", blending their passion, industry experience and wisdom with a sincere desire to set a new standard, one installation at a time.

Being an **EH-TEAM** Member means you pursue excellence with every job, continually raising the bar and inspiring industry peers to 'up' their performance. For **EH-TEAM** Members, true fulfilment comes from sharing their expertise with others and mentoring those newer to the trade.

A unique and appealing culture of 'Community Over Competition' energizes **EH-TEAM** Members, ensuring the transfer of enthusiasm and experience. Be sure to meet a Member at the next Trade Show or Industry Event. **EH-TEAM**'ers are always happy to discuss how You can **ELEVATE YOUR TRADE**!

"18 years in the HVAC&R trade and certified as an industrial gas fitter to work on large burners. This comes in handy with three fiery daughters! The team I work with for my '9 to 5' is amazing. Supporting them so they can elevate their trade is my greatest accomplishment. Working with and helping others in this community has also been incredibly rewarding. I've learned that many subject matter experts in this field are always open to helping!"

- **Jason Norman @HVAC_Jay604**

See the full team at infraAIR.ca/EH-TEAM

infraAIR HVAC

Get your **EH-TEAM** gear at the HVAC Store

infraAIR.ca/Store

Follow us @infraAIRHVAC

an hvac technician's introduction to building science

tim de stasio

In 2010, I was working as an industrial HVAC service technician. I was servicing data centers, clean rooms and manufacturing plants, and also working on really neat equipment. If I stayed in that sector, I would have continued to find ways to learn and challenge myself.

But then I started getting the urge to take the state contractor's licensing exam. I paid for an exam prep class, which was my introduction to Manual J load calculations. That first step changed the trajectory of my career.

As I studied Manual J, I realized just how much building performance impacts HVAC systems. This was a new concept to me as a commercial/industrial tech. Before, I focused on the equipment—what was broken and fixing it. I didn't pay attention to the building envelope (or the thermal shell). As these revelations dawned on me, I became very intrigued with HVAC design and building science.

You should also be aware of how the building and HVAC must work together as one system. Simply being fixated on the equipment will limit you as a technician, not to mention you will misdiagnose comfort problems on a weekly basis and not even realize it. Here are two concepts to get you started. I'll also provide a few resources to learn more at the end of the article.

Concept 1: Building Science is Just Nature Finding Balance

The second law of thermodynamics says that heat and energy try to find equilibrium. Let's translate that into a few simple statements that pertain to our work.

1. Heat travels from warm to less warm
2. Moisture travels from wet to less wet
3. Pressure goes from high to low.

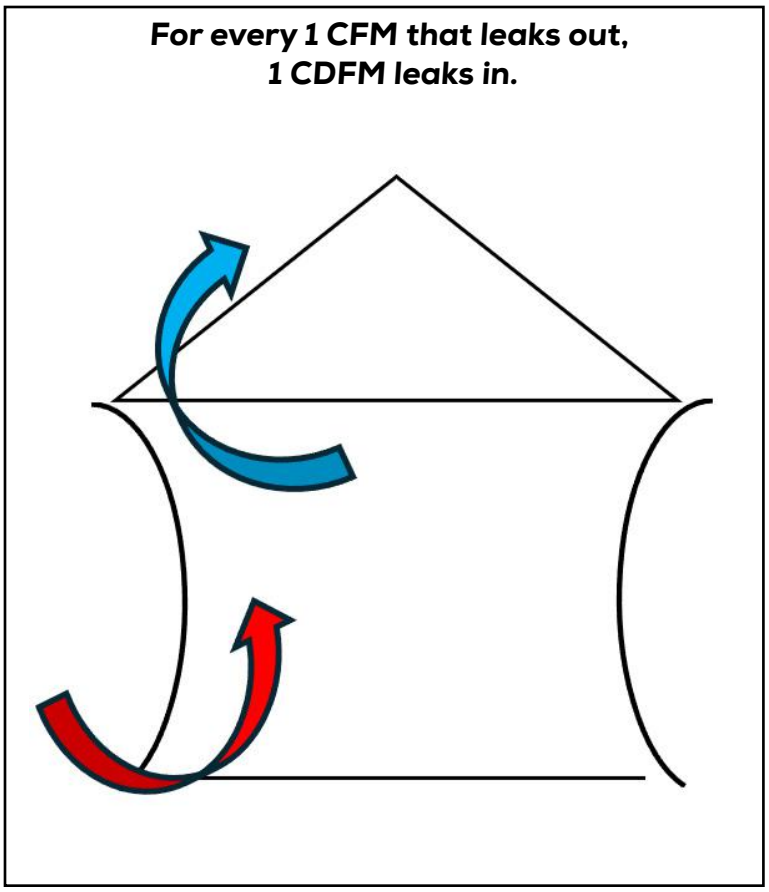
If you start looking at buildings through that lens, a lot starts making sense. The greater the "potential difference" of heat (moisture or pressure between indoors and outdoors), the more important the building envelope is to control the indoor environment.

You'll quickly learn that you can't HVAC your way out of a bad envelope.

Most buildings are kept within a small window of temperature and humidity. The climate dictates the potential difference between indoors and outdoors. The hotter and more humid the climate, the faster heat and moisture will want to enter the building in summer.

The colder and dryer the climate, the faster heat and moisture will leave the building in winter. We slow down the transfer of heat conduction through walls, ceilings and floors with better insulation, and the transfer of heat and moisture leaking by air sealing the building. But what about controlling the pressure?

The pressure difference between indoors and



outdoors is really what drives the heat and moisture too. There are obvious sources, such as wind, which exerts pressure on one or more sides of a building that drives heat and moisture in and out.

There are other ways that pressure differences can be applied to buildings. Mechanical depressurization, where there is more return than supply due to airflow imbalance, will drive heat and moisture in and out of the building. And that affects the amount of HVAC that needs to be applied to that building.

Concept 2: 1 CFM Out, 1 CFM In

This very simple principle teaches you the impact that building pressure imbalances have on comfort. Let's imagine a bathroom exhaust fan removing 50 CFM. Where does the 50 CFM that replaces it come from? Wherever it can.

The least bad scenario is outdoors, but the HVAC system will need to deal with the heat and humidity (or lack of) in the outside air at the correct proportions. That heat and moisture is energy that ultimately increases their utility bill. If some of that CFM replacement air comes from dirtier spaces like attics and crawl spaces, this can also introduce even more heat and/ or moisture, as well as air pollutants that make the occupant sick. Do you see now that home performance not only addresses comfort but health and energy efficiency too?

Now imagine instead of a 50 CFM bath fan, it's a 1,000 CFM kitchen hood. The problem we just described just got 20 times worse. We need to control where that air comes from and make sure we can condition and clean it. Exhaust fans aren't the only cause of building depressurization; duct leaks and airflow imbalances also cause significant and continuous pressure differences. If a room has a positive pressure, it probably means that another area has negative pressure.

The Tools

Our goal is to minimize the amount of uncontrolled air that enters the building through these pressure imbalances. We can read room pressure using a manometer, but not the same manometer you check furnace manifold pressure with. Rather, we need a much more precise tool called a micro-manometer because the pressure differences we're looking for are very small—measured in Pascals. There are 249 Pascals in 1 inch of water column.

I suggest getting the Retrotec Solo or The Energy Conservatory DG-8, which are great entry level micro-manometers. You can test your own home by measuring pressure differences between indoors and outdoors and room-to-room with doors closed and HVAC on.

We also need to be able to quantify how much a building leaks. A blower door test uses a calibrated fan that depressurizes the building to a set pressure, usually 50 Pascals. It measures how much air it took to get there. The more CFM, the leakier the building. Codes and standards exist that dictate how much a building is allowed to leak.

A thermal camera can "see" where these leaks are, especially on a cold or hot day. Using it while the blower door depressurizes the house allows you to know where and how to seal the space. A smoke pen also lets you see air leaks in either direction.

Where To Learn More

Once you start learning these concepts, it's a bell that you cannot un-ring. You won't see comfort and IAQ problems the same ever again, and you'll definitely think about their solutions differently as well. You'll

be solving real problems at their source, measuring instead of guessing, and providing recommendations based on real science instead of hollow sales pitches. I've now built two businesses by embracing the synergy between HVAC and Building Science and I am now known as the only HVAC contractor in my market who solves broken buildings.

If that's who you want to become, here are a few resources:

- **Book:** A House Needs to Breathe... Or Does It? *Written by Allison Bailes*
- **Guide:** ACCA Manual J 8th Edition
- **Online Training:** energyconservatory.com/applications/
- **Youtube:** @retrotecenergy and @timdestasiohvac
- **Facebook Group:** Comfort Dynamics

Tim De Stasio

Tim De Stasio is an HVAC contractor in North Carolina. With over 25 years of experience in residential, commercial and industrial HVAC, he now specializes in residential design and home performance. He also is an educator and trainer and is willing to share his experience in the classroom and on many social media platforms as @timdestasiohvac .

He has worked as a brand ambassador and technical consultant for Haven IAQ, Retrotec, Santa Fe Dehumidifiers, measureQuick, The Energy Conservatory, Conduit Tech, the #betterHVAC movement and many others.

“whatever job, **big** or small, **do it right** or don’t do it at all”

Nathan Christian

26 ● Northern Indiana

years in the trade

5

favorite brands

veto ● fieldpiece ● milwaukee

hobbies

family ● travel ● content creation

@hvac.nate

Pat Finley

42 • frankton, IN

years in the trade
20

favorite brands
ridgid • RLS • knipex

hobbies
fishing • hunting

@commercial_kitchen_chronicles

"never stop learning,
because life **never stops** teaching"

LYNKUP

Connect

Hands free, live connection.

Easily support multiple technicians simultaneously with zero hassle.

Get a demo

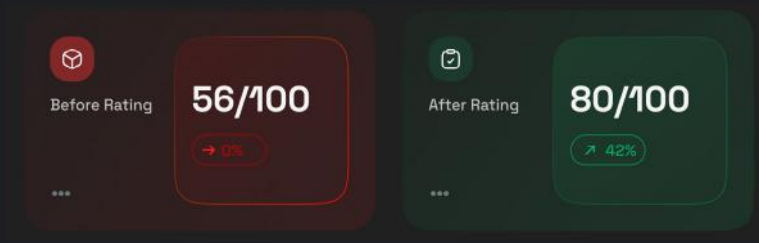
1. CONNECT YOUR TOOLS

2. CONNECT YOUR FEED

3. WORK TOGETHER

SYSTEM HEALTH REPORTS

Fieldpiece



WEBSITE: LYNKUP.AI | EMAIL: TEAM@LYNKUP.AI

ServiceTitan ELITE TRADES CHAMPIONSHIP SERIES

HVAC ServiceTitan NATIONAL CHAMPIONSHIP

Powered by TRANE It's Hard To Stop A Trane.

ENTER TO WIN!

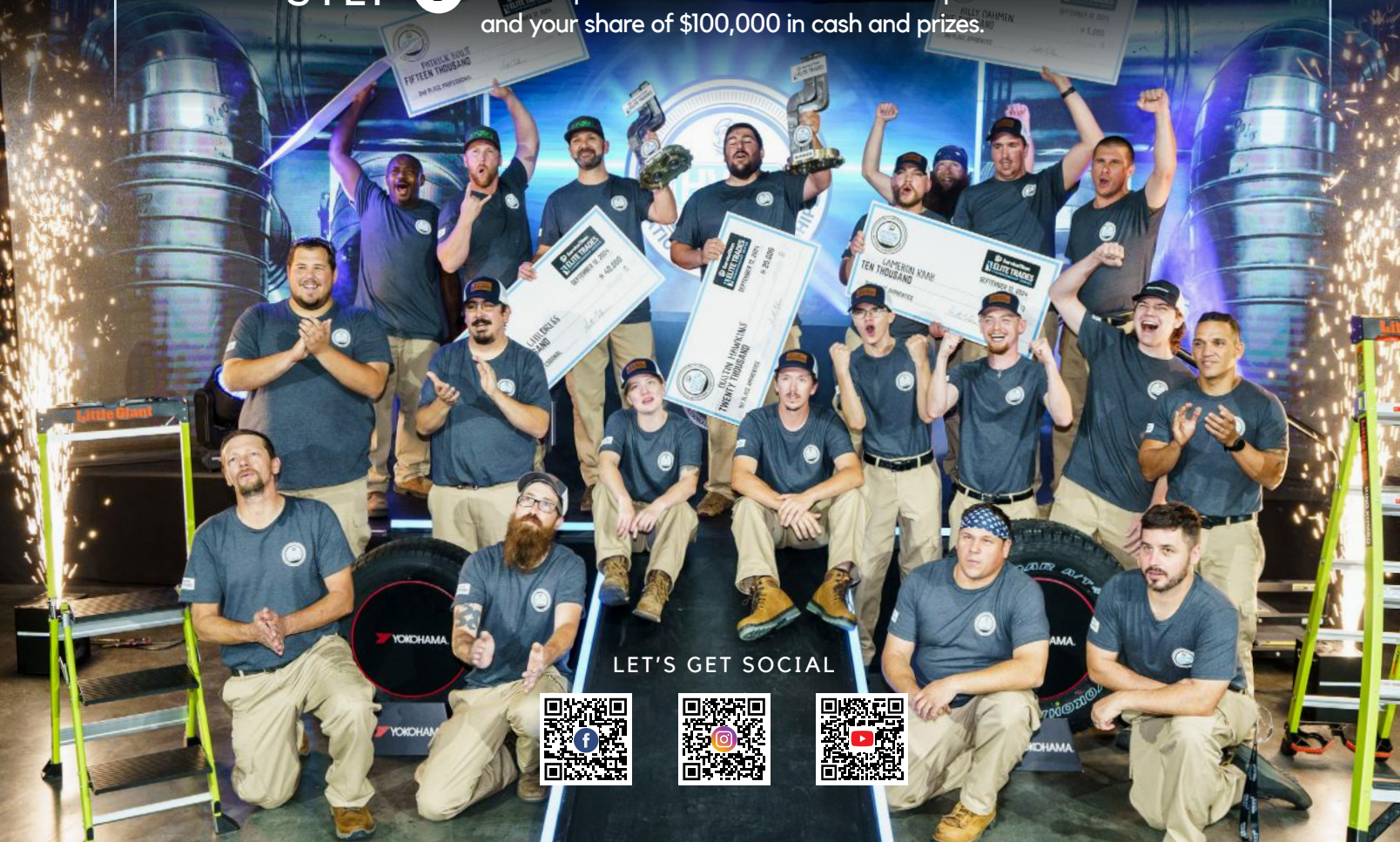
The ServiceTitan HVAC National Championship powered by Trane invites you to take a 5-minute digital quiz with questions provided by NATE to start your journey towards your share of $100,000 in cash and prizes.

STEP 1 Starting March 1, take the quiz.

Scan to Enter Round 1

STEP 2 Earn a high score and make it past the first two rounds as one of the top 10 HVAC apprentices or top 10 HVAC professionals.

STEP 3 Win an all expense paid trip to West Palm Beach, Florida, and compete for the title of National Champion on national TV and your share of $100,000 in cash and prizes.



LET'S GET SOCIAL

hvac tech support:
→ all over the map!

gary mccreadie

It wasn't long ago I was standing on the roof at a pharma site, staring at a new install. I was there to tackle an issue, but had many questions before I could get to work.

Now, I don't even remember what that call was. What I do remember quite vividly was how long it took for tech support to call me back... four days!!!

Does this hit home? If so, you feel my frustration. Don't get me wrong—not all tech support has extended wait times like I described, but the world of tech support is inconsistent at the best of times.

Here's another one that jerked my chain a little. I was sent to start up a commercial boiler at a new construction site.

Nice, clean install and mechanical room. (Us service techs love a beautifully planned out space to work in. Some refer to that as HVAC porn). I had a few questions for tech support to verify some of my concerns.

They actually answered the phone after a short wait time—fantastic! But just a couple of questions in, the young support tech asked if I had taken the manufacturer's one week course. I hadn't. And he was about to refuse any further conversation.

I had to fight it out—respectfully, of course! I mentioned to him that the customer needed the machine up and running yesterday, and without his help on a few matters it would make the customer question my abilities and potentially the quality of the product.

After a short discussion, and letting him know I was a fully qualified gas technician, the call proceeded. We sorted out all my questions and the boiler started up successfully.

There are some manufacturers out there that offer top notch support. Some of them have short wait times as well as well-rounded, experienced and trained support staff.

This type of support can make a call go very smoothly and, more often than not, allow the technician on-site to look like a hero once the problem has been resolved.

For the most part, if you're aware of the order of

operations of a specific machine and have basic troubleshooting knowledge of controls and printed circuit boards, you're more than halfway there. Where it can become messy is in the programming.

Take VFDs for example. They have very deep programming functions, and the manual is usually an inch or so thick. In most cases, it's not cost-effective for the customer if a technician must sit on-site all day, reading an in-depth manual. So, we do rely heavily on support for instances like these.

I've noticed this gap for a while now, and thought that something could be done about it. To help, I've made the HVAC Know It All app free for techs to come and join. The app offers a community environment for techs to post, engage, ask questions, etc. I have also created a partnership with Jen Manzo and her HVA-Chicks Coalition with a free 24/7 support line.

Here's how it works.

Post your problem in the Professional News Feed of the HVAC Know It All app with as much information as possible, use the hashtag #hvactechsupport and then call Jen's line to speak to a live person.

App members comment in the app for input, and the post can be saved by an individual as well, just like on Instagram. The hashtag will be important for those that want to scroll through specific support conversations at their leisure.

The world of HVAC/R service can be a wild place. The more we lean on each other, the more success we can have.

Happy HVACing!

About the Author

Gary McCreadie is creator of HVAC Know It All and the owner of McCreadie HVAC and Refrigeration Services.

lianna schwalenberg

simplified solutions: webstone's dedication to working smarter

Webstone® a brand of NIBCO®

What is Webstone?

Based in Worcester, Massachusetts, Webstone, a brand of NIBCO, is a force to be reckoned with as an innovative manufacturer of residential and commercial valves used in plumbing, hydronic, radiant, solar and geothermal applications. Focused on designs that simplify initial installation as well as future maintenance, Webstone's valves are known for their durability and functionality, and overall reflect the company's commitment to their most valued customer – the tradesmen and women dedicated to their craft. The company has filed numerous patents, including highly-recognized inventions, such as the single-flanged ball valve known as The Isolator®, Hydro-Core® manifolds for improving maintenance of boilers and the Pro-Pal® series of step-saving valves, just to name a few.

Webstone is known for churning out a steady stream of new products every year, many of them patented. Where did this drive for innovation come from?

While Webstone has been around since the 1950s, the company as it stands today is the vision of former president, Michael Reck, who took over in the 1990s. To familiarize himself with the trades, Reck spent a lot of time hanging around wholesale counters looking for trends. He noticed some of the guys would buy sets of ball valves, brass nipples and flanges multiple times a week. When he asked them why they needed to buy so many parts in pairs, they explained that installing ball valves up against both flanges of the pump made it easier to replace the pump in the future. Ever the entrepreneur, Reck envisioned a better way and decided to simply manufacture a flanged ball valve. By the late 90s, The Isolator®, Webstone's first line of patented products was born.

More than a run-of-the-mill ball valve company, Webstone began focusing on innovative solutions to repetitive component assemblies that could save labor and space on the job site – in essence, "Working Smarter." Webstone has remained committed to this focus ever since.

Michael Reck passed away in late 2015, and through the acquisition by NIBCO in May of the following year, Webstone has been able to expand its portfolio and continue to design, manufacture and distribute groundbreaking products.

What brought Webstone's General Manager, Lisa Lyon, into the industry and what keeps her interested in it?

Overseeing all aspects of operations at Webstone, including connecting the product development team with the trades, Lisa Lyon admits she never stops working, but only because she absolutely loves her job. Lyon joined the company 20 years ago in search of a more fulfilling career, one that had tangible evidence of a job well done.

She recalled seeing parades of work vans on her daily commute and feeling a sense of jealousy in that they could go home every day knowing they either fixed a problem or learned something new. That's when she decided to pursue a career in manufacturing.

Holding a bachelor's degree in Sociology as well as an MBA, Lyon brought to Webstone organizational talent and experience in business processes. She thus began at Webstone building out the structure for their Inside Sales Department. Since 2010, she has been active in

product development, helping to expand the brand's product portfolio, even being named co-inventor on multiple Webstone patents.

When asked what she enjoys most about being a manufacturer for such a diverse amount of trades, Lyon affirms, "I love the camaraderie that's present throughout the industry; attending trade shows and seeing people who feel like old friends. The community that has grown out of social media is incredible, as is the effort to promote the trades as an exciting and rewarding career path for the upcoming youth."

She includes, "We've always said that the Webstone customer was special and unique in their dedication to their craft. We enjoy seeing that population grow, taking to social media to share the pride in their work and eagerness to teach others. We are honored by the excitement that comes from someone holding a new product that's going to make their job easier. It's just the best feeling."

What's an example of how Webstone supports the skilled trades community and those interested in joining the trades?

This year, Webstone joined its parent company along with Impetus Media to host the NIBCO Community Over Competition Educational Build at the AHR Expo, which were live, hands-on boiler build sessions with top industry influencers. The final builds were then donated as training material for the future generation of technicians and installers.

Remarking on Webstone's excitement to be a sponsor, Lyon expressed, "It was inspiring to get to see products given so much care to design and actually getting to be installed in real time. It was a real full-circle event, with skilled professionals like Michael Flynn, Tyler Dynes, George DeJesus and Ben Thomson all turning up to share their knowledge with an eager audience. The end results were impressive, and we now have an opportunity to pass that knowledge along."

What does Webstone's tag line "Work Smarter" mean and how does the brand work towards this goal?

Scattered throughout their website, Webstone highlights the need to work smarter. When asked what this means, Lyon responds, "'Working Smarter' is a fundamental building block in the Webstone DNA. For us, it's synonymous with continuous improvement (and one of the five core values of NIBCO). Our team revels in finding a better way to do things."

She adds that not only should this be evident in the products themselves, but the mantra is also part of the company's internal culture. "We like to ask 'Why?' 'What if?' and 'Why not?' a lot. If we can be more efficient with our time and resources, it affords us the capacity to say 'yes' to new opportunities as they arise, which presents us with other interesting challenges," Lyon observes.

What piece of advice would Lisa Lyon give to contractors who might be managing staff or technicians for the first time?

"Energy and attitude are top-down. Make sure your team knows you appreciate them, that you value their work, and are committed to seeing them grow." She elaborates, "It's on you to make sure you've got the right players in the right positions with the right training and support to have your team perform at its best."

On the concern that the industry is competitive, Lyon points out that, "Good competitors will help you raise your own bar; we're all better together."

What were some of Webstone's products on display at the AHR Expo this year?

As part of their mission to always pack their booth full of eye candy, Webstone featured new Y-Pattern Mixing Valves, new compact versions of the popular Hydro-Core® Manifold and several new additions to the G-Series® Line which allows technicians to make over 250 different size and end combinations with a single valve body and matching union ended fittings.

How can technicians get introduced to Webstone valves?

While many technicians have likely seen Webstone products in the field, Lyon considers the company's first products to be the best at telling the Webstone story. She explains, "the simplicity of the Isolator® usually tells a good one, along with our Ball Drain products." Second to none for combination ball valves, Webstone's Ball Drain allows technicians to isolate a portion of a piping system, and with simple adjustments, drain from either side of the valve.

Lyon emphasizes, "Our products are certainly great, but so are our people." Webstone has a consistent social media presence and frequently interacts with tradespeople there, responding to even the smallest bits of feedback.

"We enjoy recognizing the trade's work and re-sharing impressive installations on our stories.

In fact, looking at installations on a daily basis is where a lot of Webstone's new product ideas originate."

Lyon underscores, "If we don't seem to have something you think would be helpful, shoot us a DM. We'd love to hear from you."

Jeison Miranda

40 • broomfield, CO

years in the trade

16

favorite brands

bosch • veto • RLS • navac

hobbies

snowboarding • biking • cars

@ticohvac

"never give up"

the voice of the future?

Three years ago, I was researching the fundamentals of AI language models full-time. At that point, AI could barely compose a coherent email, let alone write functional software. Today, AI has become nearly superhuman in virtually every category of information work. From drafting emails to generating complex code, it has transformed into a revolutionary tool, accelerating productivity by orders of magnitude.

Yet, we are only beginning to unlock the immense, even formidable, potential of this technology. In the past year, the most radical transformation has been the advancement of AI voice.

What was a mere parlor trick—capable of simple, robotic responses—has rapidly evolved into a powerful system that handles millions of calls worldwide, delivering massive returns on investment. And the wildest part? We are at the very beginning.

The key breakthrough in AI language models came when large-scale systems were trained end-to-end. AI voice is now at a similar key technology change and tipping point.

Today's best AI voice systems are piecemeal, combining three separate technologies: speech-to-text, text-based language models, and text-to-speech synthesis. While this approach has led to near-human performance—booking rates, for example, are on par with human call centers—it remains constrained by the limitations of its individual subcomponents. However, the ongoing wave of innovation is breaking these barriers.

The latest research from leading AI labs is driving AI voice beyond human parity, promising a shift into what once seemed like science fiction.

The key is monolithic, end-to-end systems. These new models take in audio and output audio in real time, seamlessly integrating speech recognition, language understanding, and vocal synthesis in a single neural network.

Unlike today's fragmented approach, these systems learn directly from real-world interactions, mastering conversational tone, response timing and dynamic speech modulation.

Within the next nine months, these groundbreaking AI voice systems will begin rolling out in production.

We are approaching a future where the entire phone network will be AI-driven—machines speaking to machines, with humans unable to tell the difference. How does one stay competitive while this technology changes the world?

The answer is proprietary training data. The more real-world interactions captured between callers and AI systems, the better your model. Companies that adopt AI voice early aren't just benefiting from today's efficiencies; they are gaining a head start on data and system optimization.

FREE2GROW

about the author
Ben Brimacombe is the Chief of Science at Free2Grow. Previously, he led AI at Long Run Partners in NYC, and founded PointZero, an AI research company with work published in EMNLP. In his current role, he continues to engage in AI research and development, applying his expertise to practical applications in the industry, including optimizing efficiency and decision-making in complex systems.

the forgotten/unknown side of HVAC

pat finley
@commercial_kitchen_chronicles

When we think about HVAC, we usually think of standard furnaces, air conditioners or heat pumps. However, HVAC extends far beyond that. From package units and mini-splits to chillers and more, it encompasses a huge variety of systems.

One often overlooked sector is Commercial Foodservice Equipment. This industry is massive, with diverse equipment types and applications. Think about it—commercial kitchens exist everywhere. While most people associate them with restaurants, they are also found in schools, sports venues, hospitals and nursing homes. Each of these places contain specialized equipment that requires a unique approach to installation, repair and maintenance.

Commercial Kitchen Equipment & HVAC Overlap

Commercial kitchen equipment incorporates many of the same components found in the HVAC industry. Many ovens and fryers run on 24VAC and use the same gas valves found in furnaces or rooftop units (RTUs). Most convection ovens utilize end-shot burners similar to those used by Carrier, making their troubleshooting process very familiar to HVAC technicians.

My Journey into the Foodservice Repair Industry

I didn't start off in the HVACR industry. My background was in electrical work, but ironically, I didn't even know how to use a meter at first.

Taking a leap into the Commercial Foodservice Repair Industry was a major shift for me. I had only two weeks of training before being thrown into the field—trial by fire!

I quickly learned that self-education was key. I put in the time on and off the clock to advance myself, and it paid off. I started working on hot-side (cooking) equipment, and while I loved it, my ADHD kicked in—I needed more. So, I switched companies and expanded into refrigeration and HVAC.

Once again, I found myself in a new field with no formal training, but I was able to lean on friends, Google, YouTube and other online resources. Today, information is more accessible than ever for those looking to get into this field!

A Look Inside a Commercial Kitchen

A commercial kitchen can contain a wide range of specialized equipment, depending on the food products being prepared. For simplicity, let's use a familiar example—McDonald's.
Most people assume McDonald's only has fryers and grills, but the equipment inside their kitchens is far more advanced:

High-Tech Fryers

- Many modern fryers feature touchscreen interfaces, resembling tablets.
- Cooking is automated: The user selects an item, and the fryer adjusts heat levels to compensate for temperature drops when cold food is added.
- Some models automatically filter oil after a specific number of cooking cycles.
- Fryers are available in high-efficiency gas or electric element configurations, depending on store location and utility availability.

Advanced Grill Systems

- McDonald's grills cook both sides of a patty simultaneously using an upper platen that lowers and presses the food.
- These systems feature linear actuators that measure revolutions and use sensors to precisely control cooking time and pressure.
- If calibration is off, food may be undercooked or overcooked, posing a safety risk.

Combi Ovens & Ventless Technology

- McDonald's uses combi ovens for cooking biscuits, eggs and cookies.
- These ovens combine hot air and steam and are equipped with integrated ventless hoods that condense steam into water, which then drains away.
- Operators simply select an item on a touchscreen, choose a rack position and the oven does the rest.

Other High-Tech Equipment

- Conveyor toasters heat and toast buns in seconds using a heated press plate.
- Holding cabinets use RFID chips to identify food items and initiate precise holding timers.
- Frozen drink machines sit atop reach-in coolers, using pumps and hoses to mix and serve beverages at the touch of a button.
- Automated soda dispensers sync with the order system, selecting the correct cup size, dispensing ice and serving the perfect Coca-Cola every time.

Troubleshooting Food Service Equipment =

Troubleshooting HVAC

Once you open up commercial kitchen equipment, you'll find circuit boards full of LED indicators, blinking, flashing and strobing–just like modern HVAC systems.

Many newer foodservice appliances use communicating technology, similar to smart HVAC systems. These units often incorporate multiple voltages, such as:

- 208VAC
- 120VAC
- 24VAC
- 12VAC
- 12VDC
- 5VDC

So, how do you troubleshoot them? Exactly like HVAC equipment!

- Find the wiring diagram.
- Follow the sequence of operations.
- Use your standard troubleshooting tools and techniques.

Want to Learn More? Let's Connect!

The Commercial Foodservice Repair Industry is an exciting and growing field with tons of opportunities. If you want to learn more about it, follow me on all my social media channels!
Also, if you ever run into a tricky piece of equipment, don't hesitate to reach out–I'd be happy to help!

LEARN. EARN. INSTALL WITH CONFIDENCE.

At Taco, we're more than just products—we're your trusted partner for lasting peace of mind. Whether you're tackling commercial or residential systems, our Taco Tuesday Training Series equips you with the knowledge and skills to get the job done right, every time.

Why Register?

FREE weekly webinars — Learn from the best in the business
1 PDH credit for every session — Sharpen your expertise while you work
Expert-led training — Gain real-world insights that make a difference

Don't miss our upcoming April 29 session on the Next Generation Zone Controls and Switching Relays.

ALL SESSIONS

TACO TUESDAY
TRAINING SERIES
#TACOSUPPORTSTRADES

the 7 types of people you meet at AHR

According to their website, the AHR Expo is the event for HVAC/R professionals. It boasts 1800+ exhibiting manufacturers, often covers the area of two sprawling convention halls, and for North America at least, truly is the definitive plumbing & HVAC tradeshow and exposition event.

Depending on when you're reading this, AHR is either looming on the horizon or just in your rear-view mirror.

That being said, as I write this, preparations are underway for the 2025 event coming up in world renowned Orlando FL.

So, here's a quick guide to the types of folks you'll encounter marauding those red carpets:

The Overly-Excited Rookie.
You spot these guys easily because their eyes are as big as dinner plates. They've never been on the show floor before, and it shows. The lights, the sounds, the colors, the exhibits – it's all very overwhelming to this noob who really doesn't know where to go first.

> *Advice: let them spread their wings and fly. Tell them you'll meet them at the bar later on, and let them wander wide-eyed into the abyss.*

The Tradeshow Nerd
Major boy scout vibes from these folks. They may be carrying a map with a carefully charted course with an intended goal of maximum seeing/touching/feeling efficiency. These guys show up right as the gates open, well-hydrated, protein bar neatly tucked in their fanny-pack, with a detailed agenda broken into precise 15 minute increments.

> *Advice: tag along with one of these dorks if you really want to see the show.*

The Jaded Veteran
If you hear someone call the show the "ASHRAE" – they're taking fiber supplements. This is his 17th AHR, he's seen it all, and you're going to hear about it. Those many years in the trenches will breed cynicism into the rosiest of technicians. They'll show up two hours after the show starts if he even shows up at all. These folks are filled with practical advice about the show, but it'll mostly be about how to leave. The Jaded Vet is a total paradox: he both hates the show and attends religiously.

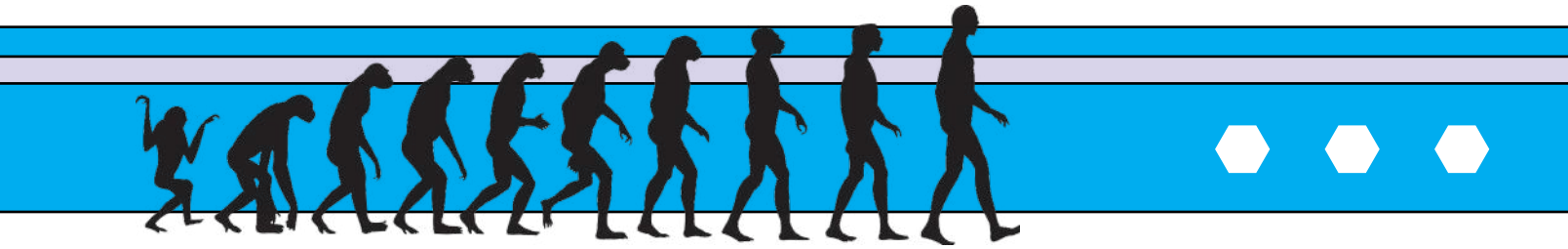
> *Advice: Their general negativity can get exhausting fast, but these guys, by far, are the funniest to hang out with.*

The Dudes in the Booth
If you want to know misery, chat with the booth staff about literally anything. Manufacturers pay an absurd amount of money to occupy space on the tradeshow floor, so, naturally, their best and brightest must patrol the space on the hunt for the next hot lead. Look death straight in the face by interacting with this group.

> *Advice: Be kind. Out of all the folks at the tradeshow – these are the people who most DO NOT want to be there.*

The Swag Whore
You know this type without an explanation. This is the guy with six koozies on his Diet Pepsi and a literal duffel bag crammed with marketing items that will mostly be thrown away before he gets back on the plane. Hats, shirts, pens, keychains, squeeze toys – these people are simply there to amass plastic logoed items that have almost no value.

> *Advice: Annoying, but harmless. They'll even give you items from their bounty should you ask nicely – the junk they've scooped up is meaningless to them. It's all about the hunt.*



The Influencer
Think Kim Kardashian if she was a plumber – yes, these people exist. Camera crews will be a dead giveaway that a content-creating Instagram superstar is in your midst. It can be hard to tell the wannabes from the legitimately popular figures sometimes, so it's best to point & stare at these folks, and give them a ton of attention. It's definitely what they want.

Advice: People with huge social media followings are often people too – most of these folks are incredibly kind and extremely approachable. Just be polite, many of the actual hvac/r & plumbing celebs are thrilled to pose for pics.

The Casual Attendee
This is probably you because this persona comprises the majority of AHR attendees. Everybody is some combination of the types listed above, and we're all prone to general goofiness!

The AHR expo and tradeshows in general can be exciting, informative, and fun experiences. Whether you're specifically seeking out new products, trying to network with your favorite manufacturers – or just there to whoop it up with some friends you don't get to see that often, these little excursions can be worthwhile. For some, the trip to Orlando will be turned into a family vacation with time divided neatly among training, tools, and theme parks.

Advice: Do whatever works for you. AHR can be long and arduous, if you're reading this in Vancouver – Orlando is a long trek from your home. Next year, Vegas is a lot closer!

Find the right accommodation, make the right plans with the right people, and you'll have a blast.

See you in next year in Las Vegas!

Matthew Pryce / @matthewfuntime
Marketing & Communications Manager for Centrotherm Eco Systems in New York. Matthew is a frequent contributor to various HVAC publications and one of the editors of this one!

What other little spare time he's got is spent traveling with his wife Gabrielle and mastering new and exotic instruments.

Rakin' in the Overtime

Jennifer Manzo
@hvacchicksjennifer
Misfits of HVAC Podcast

INSIDE the HVAC/r PODCAST CIRCUIT

A Canadian, a light commercial tech, a business owner and a comedian all walk into a podcast...

Though it sounds like a bad bar joke, this is actually the plot of one of the dopest HVACR shows on the internet. Hosts Chris Stephens, Adam Muffich, Bill Russel and the ever elusive 'OT Joe' have dominated Friday nights in the podcast circuit for a whopping 256 episodes, holding down the 9pm (EST) slot like they own it!

In true HVAC fashion, the Overtime Boys are NSFW in all the best ways, providing their loyal listeners with the industry 'tea', a wealth of knowledge, and a healthy dose of absolute hilarity we all need after a long week of HVACing!

With four equally compelling (and gratifyingly different) hosts, one might think there would be so much going on the show would be hard to follow; however this show of shows proves not only that opposites attract but that the right people can actually encompass the entire King of Trades in one podcast with ease.

Chris Stephens, host of the incredibly successful HVACR Videos YouTube channel, brings a wealth of knowledge from the restaurant/light commercial world to the show. His loveable and sometimes off the wall real-world experiences are highly relatable to so many listeners who are in the field, working on roofs and in kitchens,

fixing cold side equipment all day.

The contrast from his channel personality to his OT persona is the icing on the cake as listeners constantly bait Chris to loosen up!

Adam Muffich, HVAC business owner turned NCI trainer extraordinaire, brings a quiet intelligence to the screen leaving listeners begging to know more. Whether healthy eating and exercise, his former rock band days, or his love for licorice are on display, Adam is the epitome of less is more, as the more introverted listeners gravitate toward the man of few words who always says so much more than he knows. Adam keeps us wanting to learn, and proving that we can.

Moving right along to the infamous Bill Russel, The Curious HVAC Guy. Bill is a hard character to pin down in words. His down to earth rebellion and monotone punchlines have ensured I personally have spit out every drink I've ever brought to the Overtime show!

or really anything about his life. The interesting thing is that as listeners it does nothing but make us want to watch more.

There are whole groups of people who watch HVAC Overtime for the sole purpose of hunting for clues about OT Joe's origin story. Watching Joe fix and learn about hydronics and heating systems is part of the tether that keeps this show popular with HVAC enthusiasts all over the globe! We may not know where Joe came from or whether he really does ride a moose to work, but we can always count on him to avoid the tough questions and try his damndest to bring the show, and the chat, back to answering job specific questions. Though it never lasts long before the chaos ensues once more ensuring no listener or live watcher leaves without a smile related injury.

HVAC Overtime plays a key role in so much more than our entertainment. The show is a catalyst to showing every day technicians that those of us on the screen share the same stresses with work and life, the same passions for our industry and hobbies, and the same "if we don't laugh we'll cry" mentality.

With blunt honesty being the name of his game, his sunglasses and majestic beard hiding any emotion we may have missed from his signature voice, Bill always keeps us wondering just what he'll hit us with next! Luckily, we can always admire his vintage toy background when we need a distraction from the ridiculous laughter Bill forces us into despite our problems at work or home.

Lest we forget our favorite basement dwelling Canadian, 'OT Joe'. No, we have no idea what his last name is, what part of Canada he's from

In my humble opinion, HVAC OT is the best show to have ever hit the HVACR circuit. It's funny, laid back and made for the community. HVACR is a brotherhood.

You're part of a family whether you like it or not so you might as well grab your Dude Wipes, maybe even 3 carrots and a pineapple, and sit down to crack a cold one with the boys every Friday night.

You know I'll be there, no matter what.

THE PSYCHOMETRIC CHART

Psychrometry is the study of the physical and thermodynamic properties of air and water vapor mixtures. Water vapor is the invisible water in the air which can cause discomfort, bacteria growth, and mold if the air is not manipulated by specialized HVAC equipment. Behind the miracle of HVAC is the fundamental understanding that air is dynamic – it is energetic, and its properties change consistent to long-established laws of physics.

Psychrometry gets its name from the psychrometer, a specific type of hygrometer, which are instruments used to measure moisture content in the air. In the early 1800s, German physicist and meteorologist Ernst Ferdinand August patented the term "psychrometer," derived from the Greek for "cold measure," while studying the different properties of wet and dry air.

In 1904, before the invention of computers, the first psychrometric chart was hand-drawn by none other than Willis Carrier, to demonstrate that air has a "comfort zone." Horrific to look at, the chart is remarkably easy to read once it's broken into its seven basic parts. The chart describes how the properties of air change relative to the air's temperature and moisture content.

Like Mr. Carrier, technicians can also use psychrometry to describe what happens to the air as it is heated and cooled. In the form of a very brief case study, this article will seek to do just that, explain one of the HVAC/R industry's most incredible feats, industrial dehumidification, which can be found in places such as natatoriums, grow facilities, food packaging and processing plants, and archival storage rooms.

The Seven Properties of Vapor-Air Mixtures

Dry Bulb Temperature
While the name is antiquated, a tip of the hat to the days when thermometers had bulbs, the dry bulb temperature is the sensible heat load of the space. More plainly said, this is the temperature of the air read by a regular thermometer.

The temperature of air is what determines how much water vapor the air can possibly hold. This is due to the fact that heat, which is fast molecular movement, allows the most opportunity for water to vaporize and stay suspended in the air.

Wet Bulb Temperature
The wet bulb temperature is measured by wrapping a wet cloth around the thermometer's bulb which is positioned in a moving airstream. By doing this, the heat content of the thermometer will first evaporate the water off the bulb until it can read a steady measurement of the air temperature. Therefore, the wet bulb temperature is always equal to or less than the dry bulb temperature. If the air is very dry, most of the water will evaporate and absorb more heat from the thermometer, yielding a temperature reading far away from the dry bulb temperature.

Absolute Humidity
Absolute humidity is the actual amount of water vapor in the air and, in imperial units, is measured in grains per pound of air. The grain was a rough Bronze Age standard which reflected the weight of a barley seed. Today it is equal to 1/7000th of a pound.

Relative Humidity
Relative humidity (RH) is the ratio of absolute humidity in an air sample to how much humidity that air sample can possibly hold, expressed as a percentage. Most experts

agree that, for comfort and health, relative humidity for indoor air should be between 30 and 60 percent. Because there is a calculatable, maximum amount of water vapor that air can hold at a given temperature (it is a rather exhausting formula), relative humidity can be determined using the difference between the dry and wet bulb temperatures, also known as the wet bulb depression.

Modern digital hygrometers reverse this process so as to eliminate the need for a wet wick or twisted hair to measure humidity. Modern hygrometers measure the capacitance or resistance of a sample of air to calculate relative humidity and, with a regular temperature probe, convert those numbers into absolute humidity and wet bulb measurements.

Dew Point
Also known as saturation, the dew point is the temperature the air would need to drop to so that the air would be at 100% RH. The higher the dew point temperature, the greater the humidity. Meteorologists rely on dew point temperature to predict weather events such as fog, precipitation, and cloud cover.

Although wet bulb and dew point temperatures are very similar, dew point will always be a few degrees cooler than wet bulb temperature. This is due to the fact that they represent different properties of air. Wet bulb represents how much "space" is available in the air for evaporation, whereas dew point represents the exact moment water will start to condense out of the air.

Specific Volume
The specific volume of air, measured in cubic feet per pound in the imperial system, is the amount of space one pound of air occupies at a specific temperature. A pound of warm air occupies more space than a pound of cold air.

Enthalpy
Finally, enthalpy is the total heat, both latent and sensible, measured in BTUs, in a pound of air, at a given temperature. Warm air has more enthalpy compared to cold air.

Case Study: Industrial Dehumidification

You are a certified technician with a manufacturer that specializes in dehumidification equipment. Your customer runs maintenance at a hotel with an indoor swimming pool. The pool water is heated by a boiler which maintains the water at 82 degrees. He asks if it's okay to just use the duct heater and fan as a way to "dry out" the air.

The indoor pool is nothing more than a large puddle of water inside of a room. The only difference is that when water evaporates, more water is added to this puddle. There will be people in this puddle who splash water all over the place, causing the evaporation rate to be highly unpredictable. With or without tempering the air, loose water molecules on the surface of the pool will evaporate into the air if they gain enough energy to do so.

When it comes to property damage, natatorium dehumidifiers can prevent condensation on surfaces that might fall below dew point. Maintaining low RH not only increases comfort – it decreases the dew point. Remarkably, a proper-sized pool dehumidifier can maintain humidity as low as 40 percent. According to the psychrometric chart, the dew point of 85-degree air with 40 percent RH is about 57 degrees. This means that in a typical pool room, if outside-facing surfaces stay above 57 degrees, there will be no condensation.

Condensation can lead to mold, but with pools, the chemicals from the water will eat away at paint and finishing. To prevent condensation, the ideal duct design will create a "window wash" to keep these surfaces above dew point.

To answer the customer's question regarding simply heating the space, yes, this is possible.

Without removing moisture content through mechanical dehumidification, the only way to lower RH is to increase the air temperature. For example, 80-degree air at 100 percent RH has about 155 grains of moisture per pound of air.

If moisture content stays the same, increasing the space temperature to 110 will decrease RH to 40 percent. This is why, in emergency situations, the bare minimum the technician should do is get the fan and heat working. However, 110 degrees is extremely warm, even for a pool room, and this is not to say the humidity is under control.

Warmer air has more "space" for water vapor, so RH will climb, not necessarily to 100 percent, but to the point where there is equilibrium in heat energy between the surface of the water and the air.

In an unrealistic but plausible world, a pool room could be kept cool and at 100 percent RH, where the air has less "space" for water to evaporate into. However, the space would be excruciating for its wet occupants. A two-degree differential of air temperature above the pool water temperature is the industry rule of thumb for human comfort.

It is necessary here to clarify that warming up and "drying out" the air does, in fact and unfortunately, cause warm pool water to evaporate faster. Hence, there are many untold costs to maintaining an indoor pool. Like a vacuum, nature abhors a room with a large puddle of heated water. The customer shakes your hand and is very impressed by your thorough reply.

Lianna Schwalenberg

Lianna Schwalenberg is a service technician for the K Company, a mechanical contractor with over 50 years experience pursuing excellence in design, installation, energy management, and service, for commercial, industrial, and residential HVAC/R settings, located in Akron, OH.

Lianna has a Bachelor of Arts from the University of Wisconsin-Madison, with a minor in Environmental Studies, and an Associate of Applied Science in HVAC Technology from Stark State College. She began working for the K Company in 2021 and has since received highly-specialized training to maintain and service dehumidification equipment for natatorium applications. She argues that people like herself who own fish or aquatic turtles intrinsically understand the dynamic relationship between water and air.

fight the supervillain lurking in your heating appliance

Every day, high-efficiency boilers and water heaters quietly do their mild-mannered job, keeping our homes and buildings warm and providing hot water.

But beneath their energy-saving benefits lies an often-overlooked danger:

➜ acidic condensate.

Left unchecked, this invisible byproduct can be like Kryptonite to your mechanical systems.

These corrosive fluids can wear down pipes, damage plumbing systems, and harm the environment.

The solution?

A simple yet powerful process called condensate neutralization.

Let's dive into why this small step can make a huge difference in protecting your infrastructure and ensuring long-term system efficiency.

Acid condensate might not sound like a super villain, but in the world of high-efficiency condensing boilers, furnaces, and water heaters, it's a very real threat.

It's not a Joke(r). har har - you may be detecting a theme here!
With a pH between 3 & 5, this sneaky byproduct is highly corrosive, slowly eating away at heat exchangers, flue pipes, and drains—turning expensive HVAC equipment into a costly repair nightmare.

And if you think your drainage system is safe, think again!

Unchecked acid condensate can erode traditional plumbing materials like cast iron, copper, and concrete, leading to leaks and major headaches.

But the damage doesn't stop there—if this acidic super menace makes its way into municipal sewage or natural waterways, it can throw off the pH balance, wreaking havoc on public wastewater systems and impacting the environment.

Not even Aquaman could protect the sea from this.

To top it all off, ignoring the problem could land you in hot water (pun intended) with Commissioner Gordon and the building department, as many regulations require neutralization before disposal.

Building codes generally require that acidic condensate from high-efficiency condensing appliances be neutralized before being discharged into drainage systems to prevent corrosion and environmental harm.

The International Plumbing Code (IPC) and Uniform Plumbing Code (UPC) both emphasize the importance of treating corrosive waste before disposal. International Plumbing Code Sections 803.1 mandate that condensate be managed in a way that prevents damage to plumbing and sewer systems, while UPC Section 814.0 explicitly states that corrosive waste must be treated before discharge.

Further, The International Mechanical Code (IMC) reinforces these regulations by requiring that condensate drainage be constructed using corrosion-resistant materials (IMC 307.2.1) and ensuring that it does not cause harm to buildings, drainage systems, or the environment (IMC 307.2.2).

Meanwhile, the EPA section 403.5 (b)(2) prohibits the discharge of corrosive pollutants with a pH lower tha 5.0, unless the works is specifically designed to accommodate such discharges.

Local codes officials can and do impose additional requirements, particularly in areas with older plumbing systems made of cast iron or copper, which are highly susceptible to acid damage.

Many municipalities explicitly require the use of neutralizers, while most boiler and furnace manufacturers also recommend or mandate their use to maintain warranties.

To comply with code requirements, best practices include installing a condensate neutralizer filled with limestone, marble chips, or another pH-raising medium, using corrosion-resistant drain piping (such as polypropylene), and adhering to any local amendments or enforcement policies.
Ensuring proper neutralization not only prevents costly damage but also keeps systems in compliance with industry regulations.

The **superpower** to neutralize acid condensate, is not adamantium claws, a mystic hammer, or an iron suit, it is choosing one of several brands of condensate neutralization solutions using limestone pellets or chips.

This limestone media will neutralize the condensate by increasing its pH - rendering it harmless. There are many providers of such solutions such as Centrotherm AcidRID, Axiom, and others.

Next time you are playing the superhero, buying/ installing a high-efficiency appliance, ask your wholesaler to also provide a condensate neutralizer.

Make sure to choose a system that matches the BTU output and flow rate of your appliance to ensure proper neutralization.

By planning ahead and using the right materials, you'll not only extend the lifespan of the equipment but also stay compliant with building codes–saving you, and your customer, from costly repairs and potential violations down the line.

Remember "with great powers, comes great responsibility".

Do the right thing.

Michael Sokaris / @centrotherm_sokaris

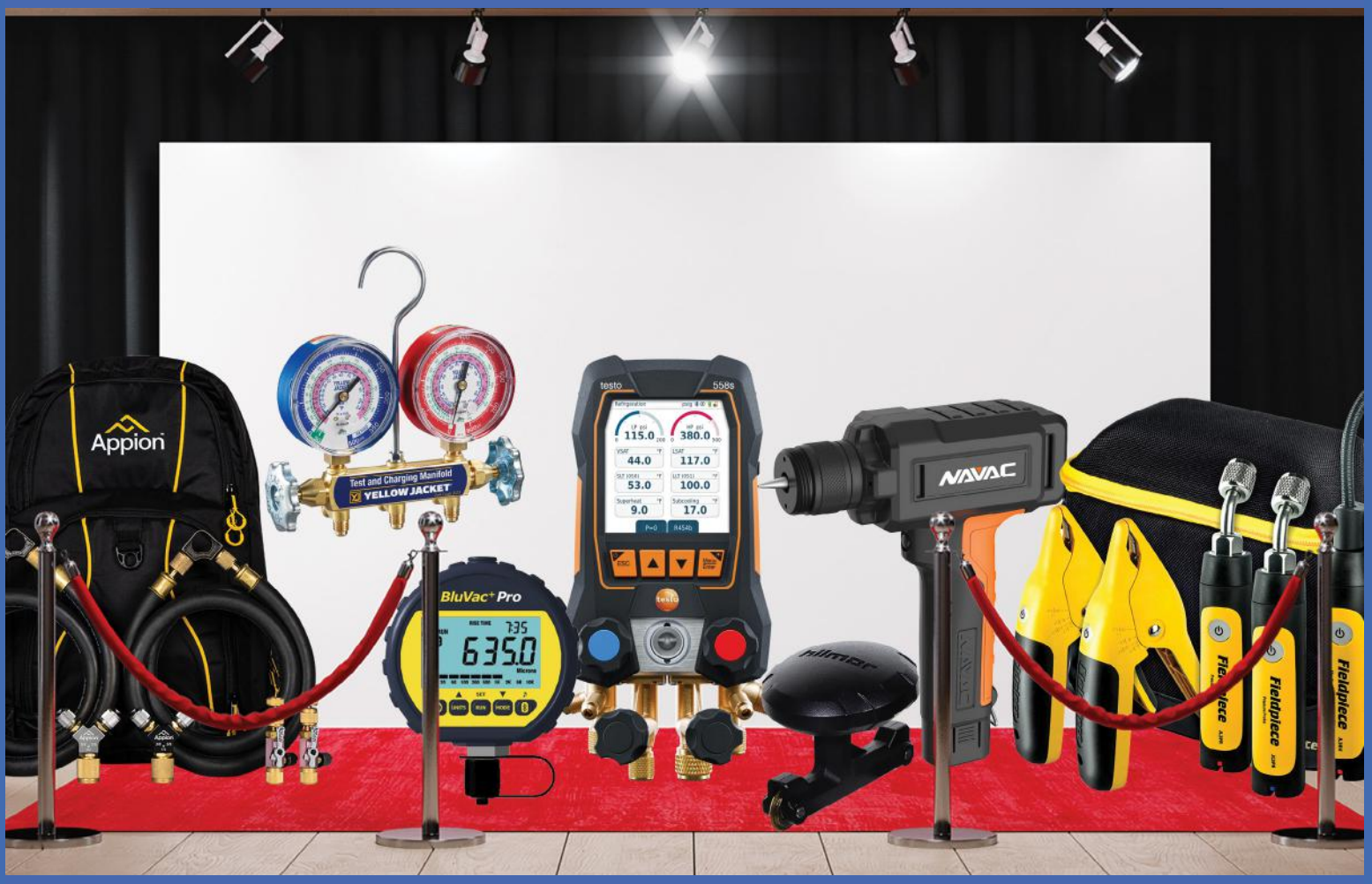
Michael Sokaris serves as the Director of Sales & Marketing
North America for Centrotherm Eco Systems

Michael and his team support the needs of HVAC, Plumbing, and Hydronic Engineers, Manufacturers Reps, Mechanical Contractors, Plumbing Contractors, Original Equipment Manufacturers and Wholesale Distributors across North America. Michael also sits on the HARDI Residential Committee and the AIM/R Supplier Advisory Committee.

TruTech Tools®

Quality Tools. Essential Support.

AWARD-WINNING TOOLS



FOR AWARD-WINNING TECHS

TruTechTools.com

Fieldpiece

VACUUM PUMPS VPX7 | VP87 | VP67

LESS HASSLE MORE HUSTLE

Swap oil in seconds with **RunQuick® Oil Change**.
No vacuum loss.
No downtime.
Nonstop efficiency.

A2L

In 2018, an idea was brought to life.

An idea that HVAC guys who were passionate about their craft could wear cool gear that represented what they did for a living.

An idea that the brand itself would stand for something more than just a cool looking shirt or hat.

That idea was HVAC Tactical.

It celebrates those who have the desire to learn and have made the conscious decision to strive to be the best at what they do.

Being tactical is a mindset.

It's seeing the end before you even begin.

Calculating, planning, and plotting every step to ensure the success of the team, job or goal.

So keep training, keep learning, and make the decision to be the best.

Use Promo Code "spring25" for 20% off your next order


more than a brand
more than a lifestyle
› it's a mindset
HVAC
TACTICAL
hvactactical.com

NAVAC

Empowering you to work smarter

Learn More

Analog is Out.

Flex-X is Now.

MANIFOLD GAUGE WITH HD COLOR GRAPHIC INTERFACE

Reimagining P/T Display

Traditional analog gauges provide visual feedback but lack precision, while newer digital gauges offer accuracy but lose intuitive movement. With an HD color graphic interface that offers digital dials alongside numerical readings, **Flex-X** combines the best of both worlds, delivering precise readings and crisp, high-contrast real-time insights.

Save Money & Space

Traditional gauges require separate dials for each refrigerant, leading to high costs and bulky toolkits. **FLEX-X** solves this problem with a digital dial displaying 72 refrigerants in one device. At $229, it replaces multiple sets of $80–$180 analog gauges, saving money, reducing clutter, and improving efficiency.

Bridging the Gap

Many technicians switched from analog gauges to advanced digital manifolds, but these are costly and sometimes complex to use. **FLEX-X** bridges the gap. When an advanced digital gauge is unnecessary, **FLEX-X** delivers a streamlined, intuitive solution—offering the clarity and ease of interpretation without the complexity.

AVAILABLE NOW AT YOUR FAVORITE NAVAC DISTRIBUTOR

www.NavacGlobal.com