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- Recharge Your Company Now!
- How to Determine if Flue Gases are Sick
- Get Real About Social Media Marketing



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Keep Your Field Service and Installation Technicians Safe



Mike Weil is editor-in-chief and director of communications and publications at National Comfort Institute, Inc. Contact him at ncilink.com/ContactMe.

As I write this column, the United States is sitting under what meteorologists call a **heat dome** – a weather system that traps hot air over certain geographical areas for extended time periods. This brings with it soaring high temperatures, pea-soup humidity, and the possibility of extreme weather.

During summer these can be the conditions in which your service and installation teams work, to the possible detriment of their health and safety. Here are some ideas that come from the U.S. Occupational Health and Safety Administration (OSHA) and other resources.

OSHA has safety training requirements that many HVAC contracting firms may or may not be aware of. You can learn more by visiting the OSHA website here: [ncilink.com/OSHA-safety](https://www.osha-slc.gov/OSHA-safety). As OSHA says, the best way to keep yourself and co-workers safe is to choose proactive safety, which means focusing on accident prevention.

SOME BASICS FOR FIELD TECHNICIAN SAFETY


Here are some common sense things to think about as your teams head out into the field during the hot months. Techs should start off with self care, then equipment and environment care:

- **Stay Hydrated** — This is most important. Your techs must drink a minimum of 24 to 32 oz per hour, according to the [CDC](https://www.cdc.gov) to stay hydrated.
- **Keep Your Skin Covered** — One of the most effective safety tips field technicians should practice is to keep their skin covered. Wearing a hat and gloves is a good start, but there are plenty of other best practices like wearing a long-sleeved shirt tucked into pants. This keeps skin safe from sun exposure and subsequent burns.
- **Inspect Protective Gear Every Time You Use It** — Gear wears out, and can become defec-

tive over time. Always check gloves, fall protection equipment, eye protection, and so on. Report any faulty equipment to your manager and be sure NOT to use equipment involved in an incident.

- **Focus on Health and Wellness** — Stress, fatigue, and poor mental health can all contribute to injuries. Look for ways to improve total health outside of work, and talk about taking plenty of breaks, eating properly, and drinking fluids.
- **Avoid Distracted Driving** — Let's face it, traffic accidents are among the most common ways to get seriously hurt when traveling to and from job sites. OSHA recommends to avoid distracted driving. This includes avoiding eating or talking on the phone when driving. Pull over if you feel tired or unwell.
- **Don't Take Shortcuts** — While your end goal might be to move on to the next job, rushing can lead to a botched job and can put you at risk. Taking shortcuts can lead to accidents that can put you in a dangerous situation and get you hurt. Take a few extra minutes to be sure the job is done right and safely.
- **Try to Work in Pairs** — This is a Boy Scout rule that also applies to field techs. If you work alone and something happens, it can take longer to get help in an emergency. Working in pairs can reduce this time. By the way, ladder safety requires you to work in pairs.
- **Report Near Misses** — It is equally important to report near misses as well as actual incidents. Why? To find the root cause of that near miss and learn from it.

There are many other things you can do to keep your field workforce safe. Consult with your insurance company for more ideas. Many even provide safety training as part of their coverage. Be sure to take advantage of that.

And stay safe out there! 

Written by HVAC Professionals for HVAC Professionals

Bacharach "Leakator 10" Test Instrument

Gas leaks are dangerous and cost consumers money. Using soap bubbles to find gas leaks can be compared to finding water with a stick -- not precisely 21st-century technology.

Electronic testing instruments, using 21st-century technology, are used for just about everything, and using them for gas leaks would seem to be on the top of the list.

There are many manufacturers of combustible gas leak detectors. In my opinion, for the past 30 years or more, none has proven more dependable than the **Bacharach "Leakator 10."**

The Leakator 10 detects all combustible gases, including methane, to 20 ppm.

This measurement is the lowest of most gas detectors. Its 20-in. probe makes it easier to access hard-to-reach areas such as overhead gas lines, gas lines behind clothes dryers, ovens, etc.

The Leakator 10 uses a ramping light display and a beeping sound when it detects a leak. The light display is helpful in noisy environments. It operates on five "C" batteries which should provide 30-hours of use. It has a manual sensitivity adjustment to hone in on leaks when there are excessive leaks or interference.

One of the best traits or benefits of the Leakator 10 is that Bacharach calibrates each sensor to each unit.



This minimizes nuisance or false readings. Bacharach sends you a new sensor and a resistor that calibrates the sensor when you order a replacement.

Many leak detectors will detect aftershave, deodorant, perfume, pipe dope, etc. The Leakator 10 is the least likely to respond to these odors, so it is still okay to bathe and smell good.

WARNING: No combustible gas leak detectors are approved for carbon monoxide testing! They will not detect CO until levels exceed 500 ppm.

If you're interested in learning more about Bacharach's Leakator 10, go to the National Comfort Institute store at ncilink.com/Leakator10. **NCI**

— by Jim Davis, senior instructor, National Comfort Institute

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The Magic of Lakeside Service Company, Inc.

Sometimes, companies seem to come by their success magically. Overnight sensations hit the scene with all their processes and companywide culture intact, as if they appeared out of the clear blue, with the wave of a wand or the chanting of incantations.

But this is just an illusion. The magic of success comes from hard work – and lots of it. It comes from dedication and investment of time and energy in people, processes, equipment and tools, and training. It does not appear out of the clear blue.



John Boylan is the general manager of Lakeside Service

According to John Boylan, general manager of [Lakeside Service Company](#), Brighton, MI, “Success comes from hard work, from taking calculated chances, and learning from mistakes.”

For Lakeside, a 39-year-old residential HVAC company, success begins and ends with training.

In June of this year, Lakeside Service Co. celebrated its 18th year as a member of National Comfort Institute (NCI). In 2014, the company was profiled in the *High-Performance HVAC Member Newsletter* (ncilink.com/Lakeside) and at that time it was a \$3

million firm just starting out [Walking the PATH to Performance](#).

In that story, John shared how his father, from the outset of Lakeside, wanted their focus on keeping customers comfortable and safe. To do that required continuous education. That truth remains central to the company’s culture.

THE MAGIC OF CHANGE

Today Lakeside is on target to achieve more than \$9 million in sales and has around 46 total employees. They field 18 production vehicles (HVAC installation/service and plumbing) and three vehicles for their sales team. John points out that the growth happened despite the COVID-19 pandemic. He attributes this to the commitment to training and development of internal processes to support their high-performance approach.

“Back in 2014, we really got serious about airflow testing, measurements, and diagnosing invisible problems,” he explains. “Before that we participated only in a smattering of NCI air balance and combustion classes. The light bulb went off for me when our dabbling in testing and measuring began bringing in more jobs and more profits.”

He says that is when he made a commitment to get 100% of his team trained and certified.

“But that meant making a lot of changes in how we did our work,” he

adds. “It also meant committing to investing heavily in our people and our tools. The magic is in our commitment and hard work.”

TRAINING! TRAINING! TRAINING!

Today Lakeside uses NCI as a primary technical training source and BDR for business training (business planning and management).

“We also do John Maxwell leadership classes,” John continues. “Training is nonstop. We budget easily \$90,000 per year for training. This is in addition to our participation in all the manufacturer factory training, association classes, and more. It is a lot of time and money. But it pays us back tenfold.”

He says they recently invested in a virtual reality (VR) system, for when younger techs struggle with things like wiring or diagnostics.

“Sometimes VR helps our installers who are great at installation work but get stuck if the equipment doesn’t fire up perfectly. We bought a subscription-based VR system that works like a video game. It teaches our guys how to do the algorithms of diagnostics. So far, it’s been a good investment and a good tool.

MISSION ACCOMPLISHED, YET ONGOING

“Back in 2014, one of my goals was to have all my techs certified in air balancing and CO. Today I can say that



we've accomplished that and more," John says.

Since accomplishing certification across the board and keeping the techs engaged with system performance testing and diagnostics, John says he has seen higher levels of service and satisfaction.

"It's hard to quantify it, though," he says. "Training and certification are just some of the ingredients that make the cake. The one thing I can say is that problems we once couldn't figure out are now very visible to us. We're at a point now where we test static pressure on every job and if a tech gets stumped, he or she can call in with their measurement data and we can easily see whether the problem is with the equipment or the ductwork.

"And we can prove it. Customers understand the numbers when you show them data. Today it's just a part of our culture.

"It was almost 10 years ago that we started doing NCI **onsite training** for the entire team to get them certified at the same time. We began by doing onsite training just once per year, and now we do it twice per year – air-flow training in the spring and combustion and CO training in the fall," John explains.

"A direct result of this is that we install better systems than our competition. Our customers are willing to pay more money for what we do, and I can't think of anything better than that."

CREATING EXCITEMENT

John says that his sales staff knows that their installation, service, and maintenance technicians are a cut above the rest. The result, he adds, is that Lakeside provides customers more thorough maintenance than they'd get from competitors' standard tune-ups.

"That is one reason why our technicians love the training we provide. The direct result is that our employee (tech) retention is super high. And THAT provides a direct monetary impact on the company.

"My philosophy is that at Lakeside, if there is a right way to do something, everyone does it. This is what fires our team up and gets them excited. They look forward to training. If we have a new hire who hasn't yet been to any training, I've heard our senior techs telling them how much they are going to love it.

"I wouldn't spend this kind of money on something, or have the kind of relationship like I do with NCI, if there wasn't significant value to Lakeside and myself," John says.

ON-GOING IN-HOUSE TRAINING

In 2014 Lakeside was doing a lot of in-house training in their own training center. Eight years later that internal training has expanded. John says in that time, they've doubled the size of their training center by taking over an additional 2500 sq. ft. of the building

they own after losing a tenant.

He says they converted part of that space into a front office with a conference room and then the rest became the training center. Work on the expansion was completed in the fall of 2021. The new center has updated technology that, in John's words, make it a professional training center.

SERVICE/MAINTENANCE: NOT EVERYTHING WAS MAGIC

Back in the 2014 Spotlight on Lakeside Service, we focused on a staff-driven service/maintenance program called SAFE that John was launching. SAFE is an acronym for Smoke, Air, First priority, and Emergency service.

This was an all-inclusive furnace, air conditioning, water heater, smoke detector, and CO alarm maintenance agreement that cost more than Lakeside's standard maintenance agreement. It was supposed to provide the vehicle for John's team to not only conduct performance testing, but have discussions with customers about it.

Unfortunately, John says the program did not work well for several reasons and wound up being shelved.

"There just wasn't enough buy-in from management and to be honest, the program was poorly executed by me. We abandoned it in 2017 or 2018, we still own the service mark on it.

"In its place," he explains, "we focus on doing system performance (static pressure) testing on all our calls.

"On the heating side we measure airflow, static pressure, and temperatures. On the cooling side we do the same measurements plus enthalpy readings. Our techs do all of this on every single maintenance call. "Plus, nearly all our service techs also do it on every call, unless the issue a customer is having has nothing to do with static pressure. High-Performance testing and measuring are what they do first," says John.

He adds that all installations are also tested and started this way.

THE MAGIC OF DATA

Because Lakeside uses the Service Titan management platform, John says they have many tools built in for capturing high-performance measurements.

"But we are seriously discussing using NCI's **ComfortMaxx™** software, especially on the installation side of the business. Our installers currently use paper forms, but we're trying to go digital. Recently NCI's David Richardson conducted an on-site training class for us, and he went over ComfortMaxx and AirMaxx™, which opened our eyes. Everyone here has iPad tablets, so it's super simple to get into.

"I especially like the ComfortMaxx software as a tool for sharing results with customers. It's great for presentations because it's very visual. We are looking into making it work with our Service Titan system without having to do double entry or make it complicated for our field technical team."

SELLING AIR UPGRADES

John says that because of all their testing, measuring, and data collection, selling air upgrade work is fairly

easy and his team does a lot of it.

"I think we are extremely successful selling minor air upgrades on almost every job. This includes increasing return drops, and doing duct upgrades around the equipment which happens all the time," he adds.

"We've built some more-elaborate air upgrades as well. A few years back, David Holt did a class on **how to sell custom air upgrades**. Holt used



spreadsheets to show customers Better, Best, and Good upgrade options. I took his spreadsheet and built a few different tiers.

"For example, Level 1 through Level 3, from installing a new return air drop to a new return air drop in a central return. The third level is a return air drop, the return, the plenum, and the first eight feet of ductwork and up to two supplies.

"It's based on how bad the customer's system static pressure is. This spreadsheet tool won't help fix all their problems, but it is an easy go-to for providing significant improvement.

"Our next goal is to increase the sale of duct renovations."

THE ULTIMATE SUCCESS

John Boylan says that the bottom line in their marketing area is that many HVAC companies don't try to do testing and measuring, so they talk it down like it's not that important.

"But we have enough case studies now that we can tell customers who are on the fence to call our other

customers who will share their experiences," he says. "A number of our clients tell us they can't believe what we did for them. They describe Lakeside as magicians, or they talk about the *Magic of Lakeside*."


In the end, with all the changes that have affected the HVAC industry in the last eight years, Lakeside Service has seen a huge positive impact on their business by adapting a high-performance culture and style of operation.

"In my mind," John concludes, "High-performance Contracting helps you take your craft to the next level.

"It requires the best training. You should never settle for anything less. It takes having the right people who want to be the best. Training will get you there.

"The High-Performance HVAC world is one that most don't even know exists. It opens opportunities and possibilities.

"No one wants to be the guy who sells the same car that everybody else has. Be the guy who has something a little bit better. That is how you get people talking about your business."

It is for these and many other reasons that **High-Performance HVAC Today** magazine has refocused its *Contractor Spotlight* on **Lakeside Service**. Congratulations to John Boylan and his team. 

Mike Weil is the Director of Communications for National Comfort Institute, Inc. (NCI). He also serves as editor-in-chief of **High-Performance HVAC Today** magazine, the only trade publication that targets the High-Performance HVAC Contracting community. He can be reached via NCI's contact page at ncilink.com/ContactMe.





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Recharge Your Company After A Busy Summer Season

The busy summer season, especially this year's extreme heat, is when most HVAC contractors run their teams ragged and make the bulk of their annual revenues. Often businesses bring on extra people to help cover the increased workload, extended hours, and people get very close to burning out.

So how do you recharge your team as the busy season slows down? At Minnick's Inc., early fall is when our schedule loosens up and we have time to prepare for the winter season. We don't get busy again until January, which is why scheduling vacations for our team is essential. Time off is a big part of recharging people from the summer grind.

But vacations aren't enough. Fall is the time to get our training, marketing, and planning back on track.

THE POWER OF TRAINING

Each fall, we put together a training schedule. We know where each of our techs are regarding



Minnick's training center has three rooms, including one dedicated to hands-on training.

the classes and certifications they are working on. We know what they need to work on, and frequently the techs come to me to let me know if there's something they want to concentrate on. Of course, if that fits in with what we need them to learn, then we'll also work that out.

The power of training to rejuvenate the team is fantastic, especially after the go-go-go time of summer.

But that doesn't just happen. It takes planning. I'm the in-house trainer for our company. I handle all the scheduling and often teach the classes. We cover static pressure testing, electrical diagramming, duct renovation, CO testing, etc. I've been through training with National Comfort Institute (NCI), and use those skills and knowledge to train our team.

We have all the materials needed to help our team understand the **why** behind all of it first. If they don't know why we want them to perform static pressure testing and everything else, they won't do what we want most of the time.

That includes understanding the why behind all our processes and procedures. Then we make sure everyone follows those processes and procedures. Very importantly, we capture everything we do in our operations manual.

MAKE TRAINING YOUR OWN

Why do I do this myself? The answer is simple. Our technicians work hard every day starting at 5 AM. In all good conscience, I cannot send them to training sessions in the evening. For example, in the Maryland area where we operate, we have an apprenticeship program for technicians that helps them earn their journeyman license in four years.

Apprenticeship schooling is available through



our local ACCA chapters, where techs take classes two nights a week, roughly from 6:00 to 10 pm.

I went to the Maryland State Department of Labor in 2010 to request starting my own apprenticeship program. I had to do all kinds of paperwork, create a syllabus and gather training materials, then submit everything for approval.

They approved it, and now I have my own in-house state-approved apprenticeship training center.

Minnick's training center has several rooms – one holds up to 10 people, the other holds 35 to 40 people. A separate room contains all the different equipment, control boards, and everything else necessary for us to do hands-on training.

We also do home performance testing and training; we have a BPI-certified test house, and I am a BPI Proctor with all the certifications to do their training within our company.

I make training our own, and all my employees go through those classes to get certified. Because I am a BPI proctor, we even train other HVAC technicians for BPI certification from up and down the East Coast.

FALL IS A TIME TO REVIEW AND PLAN

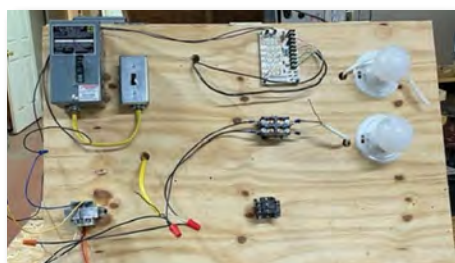
As summer winds down and fall begins, I have a bit more time to sit back and take a hard look at the business. This is when I start figuring out our current strengths and weaknesses, where future revenue streams will

come from, and how to ensure we are set up to grab those streams.

I look at our numbers monthly, even during the busy seasons. Knowing our numbers helps me keep my finger on the pulse and see what changes we need to keep our team working and revenue rolling in.

Fall slowdowns allow me to sit down and discuss those numbers in more detail. This is also when we can implement creative new plans or service offerings. Fall is when we test drive anything new.

For instance, this year, I signed up for The New Flat Rate (TNFR) pricing system in May.



A control board helps techs understand electrical wiring.

We got it all set up and launched it mid-Summer. We did some training through June because TNFR requires you to attend three virtual classes, which was great. After all, we don't have time to go to Georgia during the summer.

Then we had to get everyone on board and understand what it is, why we are using it, and so on.

During the fall, we will discuss the problems with this new software and work out any bugs. That way, we are

up and fully running with it.

This launch was unusual in that we launched during summer. I did this because flat rate pricing makes things simpler for our technicians. Plus, it gives homeowners choices – something I've been trying to build with good, better, best scenarios.

RECHARGING THROUGH REMOTE MONITORING

We offer a standard maintenance agreement at Minnick's, but our main agreement is for remote maintenance monitoring. Remote maintenance is where we install a device on the customer's HVAC system that monitors it 24/7. This program helps our field service and installation teams recharge because it can run through maintenance routines remotely, saving them road time.

Another advantage of offering these agreements is they reduce the fuel costs of our vehicles, especially with today's high gas prices.

It works like this: we go into our online portal and ask it to run cooling or fall maintenance routines. It will turn customers' systems on and run through all the maintenance checks just like a tech would do.

The device then lets the homeowner and us know if there are any issues or concerns. Technicians only visit the locations if the monitoring system detects a problem or other big concerns.

Furthermore, remote maintenance monitoring helps us precisely schedule Spring air conditioning tests. Most



TRAINING

air conditioning manufacturers don't want contractors to run the cooling unless it's 55°F or warmer.

If we do the tests at 55°F, everything will come out fine because there is no load on the compressor. And then, when it turns 70°F or higher, and a problem crops up, the customer gets angry with us because we were just there testing their system.

We can schedule cooling checks for when outdoor temperatures will be 65°F or warmer by remote monitoring. And we can run checks on many different systems at the same time.

This saves a lot of man-hours. That gives our team more manpower for doing high-performance system testing, measuring, and diagnosing, as well as our building performance work.

FALL IS RECHARGE TIME

As the saying goes, you need to go slow to go fast. I don't like rolling out too many new programs or services simultaneously. Many leadership books talk about changes and new things that will make your company great.

I believe the best thing a business owner can do is pick and choose the best programs/services. Then give it the time necessary to decide whether to keep moving on with it or ditch it.

That's why we always talk about what's working and what isn't with a new product in weekly meetings. We discuss any new apps we may be using. We ask techs how to make it better. That's why we typically give new programs or services six to eight

weeks, and if things aren't working well, then we might have to put them on the shelf.

Yes, fall for Minnick's is recharge time. I would like to learn what you do to recharge your team after the busy summer. **NCI**



Rob Minnick is the CEO and president of Laurel, MD-based Minnick's Inc. He has more than 35 years of experience in the HVAC Industry, serves as a board member for the National ACCA, and holds certifications from the State of Maryland, ACCA, Building Performance Institute, Residential Energy Service Network, and the U.S. Green Building Council. He has been a member of National Comfort Institute since 2007. He can be reached at ncilink.com/ContactMe.



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It's Time to Get Real with Social Media Marketing

It is the apex of the summer season, and busy doesn't begin to describe what is happening to HVAC contractors across the country. And yet September is just around the corner, and as fall looms closer, it is time to start thinking about what to do to keep your man-hours up while workloads drop off.

I know it's hard to think about this now, but you should start looking at your marketing and promotions to keep those phones ringing as business slows down.

BEYOND TRADITIONAL MARKETING

Traditional marketing, occasionally called offline marketing, incorporates conventional media, including print (newspaper or magazine ads, mailers, and door-to-door fliers), TV commercials, and radio ads.

Social media marketing, also known as digital marketing, is a blanket term typically used to

describe online marketing strategies built around the capabilities of cyberspace. As its name implies, social media marketing leverages platforms such as Facebook, Twitter, Instagram, Snapchat, and even TikTok.

Once upon a time, creating print ads (most often for advertising in the Yellow Pages) was the primary way most contractors marketed and promoted their companies. With the advent of social media, posting tidbits on Facebook and Twitter promoting sales, advice, and company information was considered equally important.

Some fun facts to consider (source: [LocaliQ](#)):

- The average U.S. adult spends 2.25 hours on social media every day
- More than 70% of people who have a positive experience with a business on social media will recommend that business to their networks
- Facebook users click on 12 Facebook ads on average every month
- Nearly 80% of Twitter users feel more positive about a company when they get a response to their tweet
- 4 out of 5 people on LinkedIn drive business decisions
- 46% of TikTok users engage in the app without any other distractions.

THE NEW NUMBER ONE PLATFORM

Speaking of TikTok, it's more important than ever to remember that there is more to social media marketing than posting on Facebook and Twitter a few times a day.

TikTok has become one of the most used social media platforms, especially with the Gen Z



Graphic from WordStream Blog site at ncilink.com/Wordstream.

and millennial crowd. Its popularity surged during the height of the COVID-19 pandemic, which drove consumers indoors and onto their mobile devices.

According to a recent survey by [HubSpot](#) and [Talkwalker](#), the one upward trend almost guaranteed through 2022 is the continued domination of TikTok.

In that study, they say, “this short-term video platform has broken download records, quickly becoming the go-to app for connecting with current and future consumers. Powered by a highly personalized content recommendation system, TikTok can help brands gain exposure to and connect with a qualified, engaged audience.”

In fact, another survey by a group called [SensorTower](#) showed that in terms of downloads, **TikTok** placed first over **WhatsApp** (#2), **Facebook** (#3), and **Instagram** (#4). These studies show the TikTok platform was the best for your business if you want to target the Gen Z and millennial customer base.

The HubSpot study adds, “We’re also seeing TikTok content diffuse regularly across other platforms, demonstrating that it’s a medium that consumers engage with on an omnichannel level. It is inspiring other channels to test content to match.”

This part of the study is a powerful indicator that the TikTok platform is one you should consider when putting together your social media marketing plan.

FOUR TAKEAWAYS TO CONSIDER

Based on these reports, if you want to promote your High-Performance HVAC approach to customers and to



demonstrate your superior service, problem-solving, and data-based approach, marketing via social media should follow these four rules:

- **Follow Your Audience** – If your customer base is on TikTok, you should be too. To be successful, you need to connect, engage, and become part of the conversations they are having. By the way, this is equally important for every social media platform.
- **Throw Out Tradition** – Social media, especially TikTok, has created a giant wave of user-generated content, changing how companies market today. Remember, TikTok is dominating both Facebook and Twitter right now.
- **Prepare for a Monetization Model** – TikTok continues innovating to stay ahead of competitive social media platforms. They are working on improving monetizing content to keep content creators and consumers from going elsewhere. Consider looking into their programs as you prepare for upcoming marketing campaigns.
- **Keep Expansion on the Horizon** – As social media platforms continue to evolve and change, your approach to using them should too. It would be best if you kept up or you may get left behind.

Consumers are driving this trend, and 49% of those surveyed by

HubSpot say they’re likely to buy products and services they see advertised while they browse.

“Success hinges on your ability to deliver personalized ad experiences that speak to needs or ideas that consumers already have in mind. User expectations for ads vary across generations, so the trick is to gain a deep understanding of your audience’s preferences and build your strategy around them,” says the HubSpot survey.

WHAT A SOCIAL MEDIA MARKETING STRATEGY REQUIRES

A successful social media marketing strategy will look different for every business, but here are the things they will all have in common:

Knowledge of your audience: What platforms do your customers use, when they use them and why, what content they like, who else they follow, and more.

Brand Identity: What message do you want to convey to your audience? How do you want them to feel when viewing your content?

Content Strategy: While there is a level of spontaneity on social, you’ll need a structured content strategy to have a consistent voice and to regularly produce quality content.

Analytics: Quantifiable data will inform your strategy, including who you’re reaching, the right content to share, the best times to post, and more.



Regular Activity: Social Media is a real-time platform. If you want to use it to grow your business, you

70-20-10 RULE



Social media doesn't work if it is all promotional. According to the Wordstream report, your content should be mostly informational (70%). This graphic from their blog report at ncilink.com/Wordstream, is called the 70-20-10 Content rule.

need to post regularly, stay on top of engagements with your business, engage back, keep up with trends, and maintain accurate profiles.

Add Value: Don't use social media to pitch your business. Focus on adding value through valuable and interesting content and building up those around you. This, in turn, will organically promote your business, and others will promote it for you.

If you'd like more tips on how to use social media marketing, check out this guide to social media for small businesses by WordSteam (LocalIQ): ncilink.com/SocialMediaGuide. Some other resources you should include:

- Online Access (ncilink.com/OL-Acces-SM)
- HubSpot (ncilink.com/Hubspot)

- Content Marketing Institute (ncilink.com/CMI).

The widespread use and versatility of social media makes it an effective free channel for marketing your business. With the constant changing and improvement of the tech behind the platforms, it behooves you and your team to track each platform's strengths and weaknesses to make sure you get the most out of your efforts. **NCI**

Mike Weil is the Director of Communications for National Comfort Institute, Inc. (NCI). He also serves as editor-in-chief of *High-Performance HVAC Today* magazine, the only trade publication that targets the High-Performance HVAC Contracting community. He can be reached via NCI's contact page at ncilink.com/ContactMe.



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How to Determine If Flue Gases Are Sick

So how do you know if your flue gases are ill? Do they have the chills, low temperature, a fever, or excessive temperature? I thought it might be good to probe into this flue gas problem.

Measuring the flue gas temperature with a combustion analyzer would be the standard procedure to determine if the flue gases are cold (chills), hot (fever), or normal. However, it is easy to misdiagnose these symptoms because you rarely see a list of flue temperature ranges for different types of equipment.

An additional reason for misinterpretation of flue gas temperatures is a common misconception that the lower the flue gas temperature, the higher the efficiency. That may apply if the flue temperature is in the lower acceptable range. But what is that range?

THE RULES OF HEAT TRANSFER ARE SIMPLE. HEAT GOES TO COLD; THE GREATER THE TEMPERATURE DIFFERENCE, THE GREATER THE TRANSFER RATE.

HVAC equipment uses various fuels and operates at different temperatures for air, water, and steam. Equipment has different rated efficiencies and, in some cases, multiple firing rates. When was the last time you read an installation or operation manual and the flue temperature ranges were listed?

The rules of heat transfer are simple. Heat goes to cold; the greater the temperature difference, the greater the transfer rate. When measuring the actual output performance of combustion equipment, flue temperatures will seek

their proper range when you maximize equipment performance. Based on tens of thousands of field-testing results, we've recorded reliable and repeatable data for most equipment's appropriate flue gas temperature ranges.

But knowing the main outlet flue gas temperature is most important. When doing combustion testing, we measure the main outlet temperature before adding dilution air. However, for some additional diagnostic data, measuring above drafthoods and barometrics can exhibit revealing information such as the mixed flue temperature and the possibility of condensation.

When dealing with furnaces, use the formula **CFM x Delta T x ADCF** to determine the delivered Btus. On an atmospheric furnace with a drafthood and proper blower speed setting, the Delta T (ΔT) should be about 75 to 85°F. When achieved in the field, the flue temperature range of these furnaces is consistently between 415 to 525°F.

However, if the flue temperature is below 415°F, the furnace is under-fired (chills) and not delivering its rated capacity 100% of the time. If the flue temperature is over 525°F (fever), there



Measuring flue gas temperatures using a combustion analyzer is the standard procedure for determining whether there are combustion issues. However, results CAN be misleading if you don't know the acceptable temperature range.

are three possibilities: poor airflow, overfired, or dirty heat exchanger. Most are not aware of these temperature ranges and poor (sick) operating conditions because many only put their trust in a combustion analyzer's efficiency calculation. Measuring in the field has verified that this efficiency does not provide accurate information and is misleading.

WHAT ABOUT INDUCED DRAFT FURNACES?

Based on the formula above and proper airflow, the ΔT of these furnaces should be about 60 to 70°F. Because of the extended heat exchanger surface, they do have a lower flue temperature. The flue temperature range of these furnaces is between 300 and 400°F.

When the flue temperature is below 300°F, the furnace is under-firing (chills) and not delivering its rated capacity 100% of the time. Temperatures above 400°F (fever) are caused by poor airflow, over-firing, or a dirty heat exchanger.

WHAT ABOUT A TWO-STAGE INDUCED DRAFT FURNACE?

Low fire is a built-in under-fired condition, and you should expect lower flue temperatures. However, because the blower speed is also adjusted, the ΔT should still be 60 to 70°F. The problem with operating in low fire with lower flue temperatures is that it dramatically increases the likelihood of condensation. The material used for the flue will not make any difference except in how fast the flue deteriorates. Never should a flue temperature in a non-condensing furnace drop below 250°F (chills).

Condensing furnaces have the low-



Jim Davis (right) demonstrates how to use a combustion analyzer to determine whether flue gases are "sick" or not on a live furnace.

est flue temperature. They should have a 60 to 70°F rise when delivering their rated Btus. The flue temperature range on these would typically be between 100 to 140°F. Anything below 100°F (chills) and over 140°F (fever) is problematic. On older condensing furnaces, measuring 120 to 140°F is more likely than on newer ones, where it is sometimes hard to get to 100 degrees.

I look at the secondary chamber on condensing furnaces in the same way I do a fin-tube radiator. We are blowing 70°F air across it at a good velocity. Would a secondary chamber that is 90° or one that is 110°F have a better transfer rate? Unfortunately, we must deal with what the equipment is capable of doing.

WHAT ABOUT BOILERS?


Boilers can make hot water or steam. Temperatures of hot water boilers can range from 120 to 200°F. Residential to commercial steam boilers can have steam temperatures from 215 to well over 300°F. Of course, they can't have the same flue temperature with different water temperatures. Again, the flue temperatures can't be the same for all temperatures of steam.

Because of the different temperatures of the water or steam, there needs to be a floating range for flue temperatures. On conventional water

or steam natural draft boilers, we use a flue temperature range of 270 to 370°F higher than the outlet water or steam temperature.

So, if the outlet water temperature is 160°F, the minimum flue temperature should be 430°F. If the temperature is lower (chills), the boiler is underfired. If the temperature is higher (fever), it is either overfired, has poor pump flow, or is dirty (scale).

This article aims to help make technicians aware of the field-acquired operating parameters – when it comes to flue temperatures – that are needed to allow equipment to perform as rated. This is only one measurement, but it is never listed in the manufacturers' specifications.

There is so much more to this – I could write a class about it. Wait!! We did, and it's called Combustion Efficiency and Carbon Monoxide Diagnostic Certification!! Learn more about this here: ncilink.com/COTest. 



Jim Davis is the senior instructor for National Comfort Institute (NCI). He has a long and storied career in the HVAC Industry. Today he is considered one of the foremost authorities on airflow's impact on combustion and carbon monoxide safety. If you have questions, you can contact him, at ncilink.com/ContactMe.

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If you are interested in learning more, call 800-633-7058 or visit the national-comfortinstitute.com website.

Seeking Authors

High-Performance HVAC Today magazine is always on the lookout for High-Performance HVAC Contractors like you, who might be interested in writing and contributing articles.

Sure, you already have a full-time job, right? But think about this: As an author, you have a tremendous opportunity to stand out in your marketplace. Think of your articles as content you can market to customers.

So what do we need? The magazine focuses on how contractors are implementing and using the high-performance methodology in their processes and daily activities. You are the experts and we'd love to share some of your success stories, challenges, case studies, and so on.

Some typical ideas can cover:

- **Tools:** This can be a 250-word review of something you use to test static pressures, measure airflow, temperature, and heat in residential and commercial HVAC systems.

- **Processes:** What strategies do you have in place for your techs in the field and/or your office personnel to manage everything from recording field measurements to tracking high-performance training,

objectives, and so on?

- **Sales:** How is Performance-Based Contracting impacting your sales?

- **Business/Marketing:** How do you incorporate testing, measuring, and diagnostics into your service agreements? How do you use social media for marketing your High-Performance Contracting services? How do you explain test results to customers?

- **Technical:** How do you train/certify your field service and installation team?

We understand you are busy. That is OK. We can help make it as easy and painless as possible.

If this is interesting to you, simply go to the following URL: hvactoday.com/contribute. Fill out the very brief form there, and we will contact you to get the ball rolling.

If you have any questions, please reach out to Editor-in-Chief Mike Weil at nci-ink.com/ContactMe. **NCI**





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HIGH-PERFORMANCE HVAC TODAY

Publisher

Dominick Guarino

Editor-in-Chief and Associate Publisher

Mike Weil

Art Director

Judy Marquardt

Online Development Director

Brian Roseman

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Andrea Begany-Garsed

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Do You Have a Plan To Attract and Keep Top Talent?



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

One of the biggest challenges facing HVAC contractors today is attracting and keeping talent — especially field personnel.

Research shows a huge technician shortage occurring right now, with even more dire numbers over the next five years. When you take into account how many in the labor pool are actually “qualified” technicians, it gets pretty ugly.

So what can you do about it? First, make sure you work with a good recruiting organization. Also, have a good process for interviewing to help ensure prospective employees will fit into your company culture and values.

While that’s a good start, in today’s competitive market you need to think outside the box in terms of what you have to offer that will attract the very best candidates, and get them to stay with you for as long as possible.

**WOULD YOUR EMPLOYEES BE A LITTLE MORE
EXCITED ABOUT COMING TO WORK KNOWING
YOU TRULY CARE ABOUT THEIR FUTURE?**

Some companies do a good job of showing potential and current employees how they can grow.

This involves illustrating a career path for them. Each path should be detailed in literature, video, and other media so it is compelling and easy to understand.

Your communications should highlight the training they will receive as they progress in your company. You should also illustrate your vision and how it sets you apart in your marketplace. It’s important to communicate your unique culture and why your people stay with you.

What if you also communicate how you don’t stop at helping people grow into better and higher-paying positions within your organization?

What if your goal was to help them **outgrow** your company to reach their fullest potential?

Imagine how a prospective or current employee would view your organization if they knew your goal is to help them graduate beyond you some day! You’re taking the focus off what they can do *for you* and switching it to what you can do *for them*. How compelling would that be?

What if your interview conversation went something like this:

“Our company has a career development program designed to help you grow your knowledge and skills, and progress upwards through our organization. But we don’t stop there.

We recognize that when someone reaches the top of their game, they may aspire to a higher purpose beyond what is available here.

Sometimes that means moving beyond us, and we are not just OK with it, we look forward to that day. It means we are doing everything we should to help our people grow and prosper!”

Think about the message you are sending. Would you want to work for someone who said that to you? Would your employees be a little more excited about coming to work every day, knowing their boss truly cares about their future?

On the other hand, do you think your underperformers would see it as a signal that there is nowhere to hide? Typically one of two things happen: They either pull themselves up by the bootstraps and recognize the opportunity to start over with a new perspective on their job and career, or they run for the hills. Either outcome is a win.

Don’t try to do this overnight. Introduce these elements a little bit at a time. Focusing on company culture will help move the process along. This one change in how you view your people’s potential could become the spark that helps take your organization to the next level! **NCI**



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