

# Contracting Business

AUGUST 2023  
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HELPING HVACR MANAGERS RUN BETTER BUSINESSES SINCE 1944

## Building Retro-commissioning

Green building improvement programs have the common goal of promoting and recognizing efficient, healthy, and sustainable buildings.

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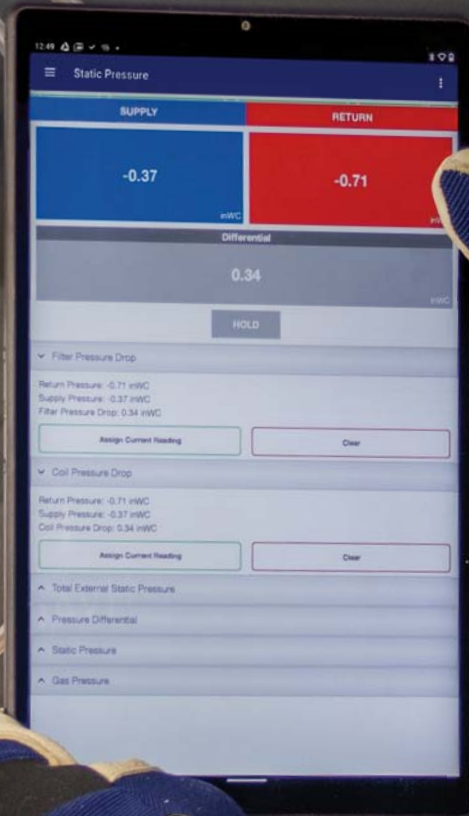
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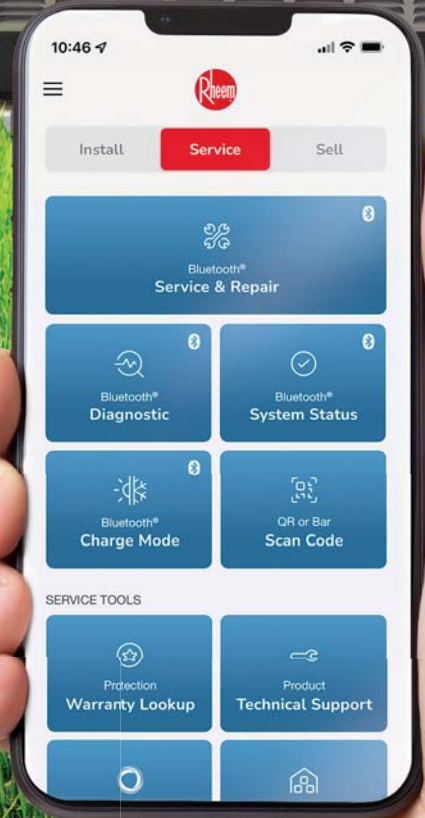
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**ON THE COVER:** 'Green' building improvement programs provide many benefits. Source: Photo 75644489 © Jon Bilous | Dreamstime.com

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**Educate Homeowners, Grow the Business**

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### News @ Press Time

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**MSCA, HVAC Excellence Partner for Careers**

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**CxEnergy Conference Declared a Success**

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### Contracting Business Success

**Finding the Right Sales Pro**  
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**Dispersion is Weakness**

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### eNewsletter Update

HVAC INTELLIGENCE

eNEWSLETTER

**Inverter Implosion?**

"The way we've always done it" won't cut it with inverter systems.

<https://contractingbusiness.com/21269733>

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participating in our  
podcasts.**

# Lend an Ear—and Your Voice—to Our Podcasts

It's no stretch to suggest that the majority of smart phone users have listened to at least one podcast in the past year. Podcasts have exploded in every corner of the phone galaxy, with literally something for everyone, and the heating, air conditioning and refrigeration industry is no exception.



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*Contracting Business* is now producing podcasts, and we're doing our best to make them a regular feature on *ContractingBusiness.com*.

To date I've interviewed two successful contractors, the CEO of Air Conditioning Contractors of America, and have provided reviews of articles appearing in *Contracting Business*. And, The Chemours Company has agreed to sponsor a series of podcasts which have started to appear online.

But a podcast can't go forward without people to interview. That's where you, the HVACR contractor comes in. Understanding that the average day of a successful heating and air conditioning or refrigeration contractor is jammed packed, I'd like to request that a few of you out there will offer to be interviewed for a podcast in the coming months.

We're looking for contractors who are willing to share how they've been successful in an aspect of their HVACR business. This can be customer service, installation, financial planning, use of new technologies, staffing, or recruiting and training. You won't be asked to divulge anything you prefer to remain confidential. We will ask you to use a voice memo app to record your side of the conversation and then email me the completed voice file. Our team edits and joins the two voice tracks together to make podcast magic.

The ultimate goal is to help contractors across the land with ideas they can use. To discuss your participation, please call me at 216-346-8978 or email me at [tmciver@endeavorb2b.com](mailto:tmciver@endeavorb2b.com).

## National Comfort Institute Relocates

Big news was received at press time, as we learned about the relocation of National Comfort Institute. It's quite a move, as NCI president and CEO Dominick Guarino revealed he has moved the HVAC high performance-based training, certification and membership organization to Morristown, Tenn., from Avon, Ohio.

Guarino said the relocation will position NCI much closer to several of the largest air conditioning markets in the US. Morristown, Tenn. Is

in the eastern side of Tennessee, very close to Asheville, NC, and Atlanta, Ga. "Coupled with our Southern California training center, we will have better coverage than ever," Guarino said, and added that the relocation enabled NCI to consolidate its training center and main offices into one space, an 11,000 sq.ft. remodeled facility, with 5,000

of that square footage designated for training. A 1,600s sq. ft. classroom will hold more than 25 students, and features 65-in. LCD screens. A separate, 1,400 sq. ft. Live-Fire hands-on training lab is also equipped with large viewing screens. Live HVAC systems, including fully ducted inverter systems, heat pumps, gas furnaces and boilers. Additional hands-on training improvements will be added over time.

Read about the new facility by turning to Dominick's Last Word column on page 32.

## ASHRAE Standard 241 is Official

It's old news by now, but ASHRAE has finalized and published Standard 241, *Control of Infectious Aerosols for Buildings*, designed to mitigate the risk of disease transmission by exposure to infectious aerosols in new buildings, existing buildings and major renovations. ASHRAE describes infectious aerosols as tiny, exhaled particles that can carry disease-causing pathogens and are so small that they can remain in the air for long periods of time and be inhaled by building occupants. Use of this standard will reduce exposure to SARS-COV2 virus, which causes COVID 19, as well as influenza viruses and other pathogens that cause major personal and economic damage each year.

Standard 241 provides requirements for many aspects of air system design, installation, operation and maintenance, and sets requirements for equivalent clean airflow rate, which is the flow of pathogen-free airflow into occupied areas of a building that would have the same effect as the total of outdoor air, filtration of indoor air and air disinfection by technologies such as germicidal ultraviolet light.

HVAC contractors, this is an opportunity to elevate your profile as an indoor air quality (IAQ) specialist. When you begin to inform building owners and managers about Standard 241, you will be the obvious choice to provide the mitigation strategy for those buildings. **CB**

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*\*Per a 2022 MIAT Residential HVAC Competitive Time Study on base and mid-tier Endeavor Line products and commercially available competitor units of similar product tier.*

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## Air Pros USA Acquires Comfort Home Services

*Auburn, AL (July 10, 2023)*—Air Pros USA announced the acquisition of Comfort Home Services, a local family-owned and operated HVAC company that has been serving the Auburn community for over 45 years. This acquisition expands Air Pros USA's residential heating and air conditioning services in Georgia and Alabama, where it currently operates as Air Force Heating and Air.

“Over the past four decades Comfort Home Services has been a trusted part of the Auburn community, and we are proud to continue their legacy with their

dynamic team of skilled industry pros,” said Rett Jones, regional manager for Air Force Heating and Air. “We knew with their wealth of HVAC knowledge and expertise they would be a perfect fit to join the growing Air Pros USA family. The combination of our collaborative efforts and state-of-the-art resources will lead to unrivaled standards of excellence to support our customers in the Auburn community.”

Through the acquisition of Comfort Home Services, Air Pros USA strengthens its local presence across Alabama and Georgia. Air Force Heating and Air

has been established in the La Grange, Columbus, and Atlanta regions since 2020.

“By partnering with Air Pros USA, the team at Air Force Heating and Air has had incredible success serving Alabama locations. The acquisition of Comfort Home Services will enable us to reach more customers and give them the first-rate service they deserve,” said Robert DiPietro, CEO of Air Pros USA.

Nationally, Air Pros USA serves over 1M customers across 16 service locations in Florida, Texas, Colorado, Georgia, Alabama, Louisiana, and Washington.

## ACCA Forms Two Partnerships to Advance Businesses and Careers

*Alexandria, VA*—The Air Conditioning Contractors of America (ACCA) announced that Grant Cardone Enterprises joined ACCA's Corporate Partner Program. Grant Cardone is an internationally renowned business and sales expert, New York Times best selling author, and contributing writer for Forbes, Success Magazine, Huffington Post, and Business Insider.

“ACCA is excited to have Grant Cardone Enterprises join our corporate partner program and dedicate not just their financial support to the HVACR industry, but also their time and knowledge through training programs,” said Barton James, ACCA president and CEO. “We look forward to seeing how this partnership will help our members become more professional and grow their businesses.”

“Our partnership with the Air Conditioning Contractors of America represents a powerful alliance that combines Grant Cardone Enterprises' expertise in business education with the HVAC industry's premier authority,” said Grant Cardone, CEO of Grant Cardone Enterprises. “Together, we will equip HVAC contractors with the essential knowledge, tools, market proven strategies to excel in sales, marketing, scaling, leadership, and wealth creation. Our mission is to empower HVAC contractors to dominate their markets and achieve unparalleled levels of success.” ACCA's Corporate

Partner Program enables HVACR industry suppliers, manufacturers, and service providers to demonstrate their extraordinary commitment to ACCA members and the contracting industry through year-round support of the association's activities. The Corporate Partner Program also provides increased access to ACCA's nationwide network of contractors through tailored communications and marketing campaigns throughout the year.

For more about Grant Cardone Enterprises, visit [www.grantcardone.com](http://www.grantcardone.com). For more information about ACCA's Corporate Partner Program or ACCA, please contact Melissa Broadus, ACCA director of member communications and committee liaison, at [melissa.broadus@acca.org](mailto:melissa.broadus@acca.org) or (703) 824-8842.

Building Talent Foundation (BTF), a national nonprofit dedicated to advancing the education, training, and career progression of young people and people from underrepresented groups into residential construction, helping them develop into skilled technical workers and business owners, and ACCA have also joined forces.

BTF and ACCA are committed to promoting HVACR careers, attracting young people into the sector, and establishing a pipeline of talent for the industry's future.

“For the past decade, ACCA's top priority has been addressing the skilled workforce

shortages that have limited ACCA's members' ability to grow their businesses,” said Barton James, ACCA president & CEO. “Helping ACCA companies recruit, hire, and keep the best talent in their markets through this partnership with BTF is one more powerful tool in our toolbox for our members to access. ACCA members will now have a chance to hire from a new, diverse pool of qualified candidates. This collaboration enables us to move the needle forward on our top priority and show that our essential industry is a great place for talented people to have long-lasting careers and further elevate the standards of HVACR practices nationwide.”

## Leap Partners Acquires Three

*Nashville, TN*—Leap Partners, a leading Southeast HVAC, plumbing and electrical business, has expanded in Kentucky and into the Georgia, North Carolina and Missouri markets through its acquisitions of Comfort Design (Ky.), Premier Indoor Comfort Systems (Ga. and N.C.) and Aire Solutions (Mo.).

“Our mission is to acquire and grow reputable HVAC and plumbing companies in the Southeast,” said John Cerasuolo, Leap Partners CEO. “These three companies all have great leaders and highly qualified technicians, making them all excellent additions to our portfolio.” **CB**

# Diapers – Yes Wipes – Yes End of jamming **YES!**

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# METUS Announces Leadership Realignment

SUWANEE, Ga., July 11, 2023—Mitsubishi Electric Trane HVAC US LLC (METUS), announced a realignment in the METUS leadership team.

- Andy Kelso has been promoted to chief operating officer.
- Shane Lawrence is on board as chief financial officer.
- Brinnon Williams has been promoted to vice president of residential business
- David Archer is new vice president of commercial business.



Kelso

As chief operating officer, Andy Kelso will provide strategic and operational expertise and leadership on the company's lean transformation, growth initiatives, market trends and business opportunities. He is the company's lead sponsor for key initiatives driving employee retention and engagement. In this role, he works closely with METUS leadership to keep up with the company's tremendous growth. With over 25 years of finance experience, Kelso joined METUS in May 2018 as chief financial officer. During this time, he immersed himself in all financial aspects of the company and was a critical leader as METUS adopted new methods of strategy deployment, lean methodology, risk management and compliance.



Lawrence

Stepping into Kelso's previous role as chief financial officer is Shane Lawrence. He is a long-term Trane Technologies employee who has spent the last 20 years in global financial leadership positions, most recently as director of investor relations. In his new position, Lawrence provides financial guidance and support to the METUS leadership team, plays a strategic role in the company's overall management, and is responsible for planning, implementing, managing and controlling all financial activities.



Williams

In his new role, Brinnon Williams is responsible for managing all aspects of the organization's residential business and leading efforts to develop and improve operations. Williams joined Mitsubishi Electric in 2011 as a regional manager in the Southern Business Unit. In 2016, he transferred to product management, where he led the team in product strategy and worked closely with Mitsubishi Electric factories on product development. After the formation of METUS, Williams became the leader of residential channel development, where he managed all aspects of the METUS Ductless Pro and Diamond Contractor® programs.



Archer

David Archer, a licensed professional engineer, joins the METUS leadership team bringing three decades of industry experience. In his role, Archer is responsible for managing all aspects of the organization's commercial business. Most recently, Archer served as vice president of sales for a US-based indoor air quality company that provides air conditioning and other air quality technologies for commercial and industrial buildings, where he was responsible for regional and international sales while maintaining extensive and diverse industry relationships. Archer also served as a managing application consultant for a large heating and air distributor in the Southeastern United States for over 15 years, where he cultivated a knowledge of building science, IAQ and LEED principles.

"We're excited about these leadership and organizational changes," said Mark Kuntz, chief executive officer, Mitsubishi Electric Trane HVAC US. "Brinnon, David, Andy and Shane each have extensive knowledge in their areas of expertise and will be a tremendous asset to our teams and the future growth and success of our business."

To learn more about METUS and its mix of energy-efficient, high-performance Ductless and Ducted variable-capacity heat pump systems, visit [www.metahvac.com](http://www.metahvac.com).

## Daikin Subsidiary Acquires Two Companies

WALLER, Texas, July 10, 2023—Daikin Comfort Technologies North America, Inc. (Daikin) subsidiary AirReps has acquired the operations and employees of two companies, Integrated Systems and Controls, LLC and InControl. Both companies are located in the Seattle metro region and have been in business since 2005 and 2001, respectively.

Daikin sources report Integrated Systems is nationally recognized for their OEM startup and warranty support services, as it also addresses some of the most challenging sites and situations relative to complex equipment and applications.

InControl represents many controls and energy management products including control monitoring and metering. The addition of InControl's products and controls support is complimentary to Daikin's continued technology development.

These acquisitions will help Daikin, in conjunction with AirReps, to meet the commercial market's need for integrated services. The combined capabilities these additions will offer Daikin's VRV and Light Commercial business include service capability, remote monitoring, and predictive maintenance programs.



"Both acquisitions will greatly enhance the capabilities of AirReps and will allow us to provide a more comprehensive array of services for our customers," said Takayuki (Taka) Inoue, executive vice president and chief sales and marketing officer for Daikin Comfort Technologies. "This will include an expanded variety of products, controls support and service from start-up and warranty to long term maintenance and repair," Inoue said.

# Rheem Shares Sustainability Achievements

ATLANTA, July 7, 2023—Rheem® released its 2022 Sustainability Progress Report showcasing notable updates on its environmentally-focused programs. Since the company launched its sustainability initiative, *A Greater Degree of Good™* in 2019, the Atlanta-based manufacturer has implemented programs to provide more environmentally sustainable solutions in North America and abroad. Two of the case study examples included within the newly released report showcase Rheem's Friedrich® and IBC™ businesses.

## Zero Waste to Landfill

To achieve an industry leading "Zero Waste to Landfill" goal by 2025, Rheem's global manufacturing facilities are redesigning, reducing, reusing and recycling materials that would otherwise become trash.

Friedrich plays an active role in the company's commitment to sustainability. In 2022, employees switched to reusable plates and cutlery in the cafeteria, routed leftover food scraps to a local pig farm and identified a specialized recycler for nine tons of foam. Employees also brought the spirit of Zero Waste to Landfill into the community, filming videos with their families about how to help the environment and engaging kids in a recycled toy competition. By the conclusion of 2022, Friedrich's manufacturing plant increased its landfill diversion rate to an impressive 88 percent, up from 63 percent in 2021.

At the Friedrich headquarters in San Antonio, Texas, in 2022, employees placed recycling bins throughout high-traffic

areas to promote increased recycling, expanded electronic and battery recycling, and evaluated the opportunity to implement composting for organic waste.

## Conserving Water, Reducing Emissions

IBC, another Rheem family brand, is innovating its manufacturing processes for residential and commercial boilers to conserve water and reduce emissions from avoided gas consumption, saving money and creating a more comfortable environment.

Before any boiler at Rheem's IBC plant in British Columbia, Canada, finishes production, its ability to bring large quantities of water to a high temperature is tested. Without a recovery mechanism, all the heat is rejected into the outdoor air, leading to a waste of warmth in a cold climate. IBC's production, operations and R&D teams diverted the hot water to air handling units to cool and cycle it back into production for continued use in testing. Next, they engineered the air handler system to push the concentrated hot air back into the building to warm the plant during cold weather, for energy and cost savings.

Chris Peel, Rheem president and CEO, from the report: "In 2022, we continued to invest heavily in sustainable technology, such as heat pumps, operated greener and leaner factories by reducing emissions and waste and empowered our industry's workforce with sustainability training. We are the only company in the industry, in fact, with a stated goal to train the trade

around the world on sustainability. Last year, we achieved our 2025 goal—three years early—to train more than 250,000 plumbers, contractors and key influencers," Peel said. [rheem.com/progress](https://www.rheem.com/progress)

## Appointments

### Malco Products

announced the appointment of Rebecca Talbot as the company's new vice president of marketing.



Talbot

As leader of Malco's marketing team, Talbot will oversee, develop, and implement Malco's marketing strategy and efforts to increase brand and market position in order to achieve short- and long-term organizational goals. Talbot comes to Malco with a broad base of marketing accomplishments and professional experience, including positions at DeepRoot Green Infrastructure, Resideo (Honeywell) and Lakeland Companies.

Talbot succeeds Nancy Gunnerson, Malco's director of marketing, who recently retired after a successful 34-year career with Malco.

LG has named Sean Foster director of channel sales for LG's Air Conditioning Technologies division. Foster will oversee the distribution sales team responsible for expanding LG's market share in the residential and light commercial HVAC sectors. This includes both national and regional distributors as well as LG's utility and builder sales teams. Foster brings more than 20 years of management experience in sales teams, processes, and operations to his new role. Over the course of his more than eight years at LG, Foster worked in various roles within the distribution sales team, including regional sales manager, national accounts, and most recently serving as senior manager, residential sales, central region.

By the conclusion of 2022, Friedrich's manufacturing plant in Monterrey, Mexico increased its landfill diversion rate to an impressive 88%.





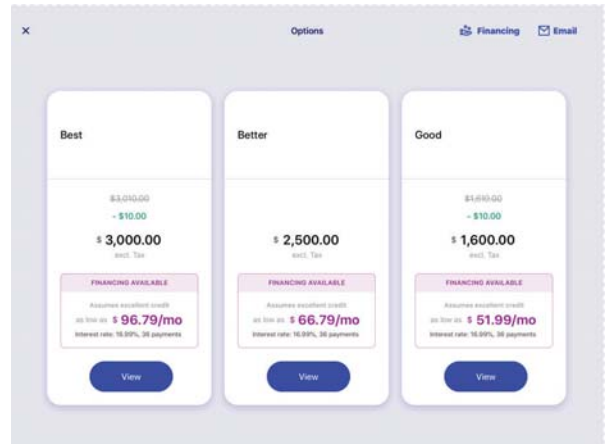
## Software & Apps

**BitRip**® is a FREE app that seamlessly tracks any type of physical asset using pre-printed BR Code™ labels. BitRip easily integrates with existing software workflows, and each code stores any data and tracks every scanned location, unlocking field-level visibility. The app is incredibly user friendly and provides excellent visibility of building materials, tools, and any other assets on a jobsite. They also make it easy to associate warranty or installation information, links to videos, schematics, and many other types of data. The data can include photos, audio, hyperlinks (including video links), PDFs, text, and more. This helps streamline supply chain operations, reduce errors, and improve visibility and traceability. Every user scan imprints a timestamp, geolocation, and user identifier, giving each code a uniquely trackable history—you can see what was done by whom, providing outstanding visibility of your assets.



Download BitRip via the App Store or Google Play, and purchase BR Code tape at <https://www.bitrip.com/shop>

**Successware** recently received a customer testimonial about its new Payments platform, from Marjorie Piercy, an office administrator at One Hour Heating & Air Conditioning in Connecticut.



One Hour Heating & Air Conditioning in Terryville, CT, has been a Successware customer since 2011 and recently added the Successware Payments solution to their platform. They are a small office with limited resources for office administration, and Marjorie Piercy says she wishes she made the jump sooner.

"I really like the search features by credit card information and read. There's a definite ease of use with this system integrated into Successware; I wanted something that would make my job easier in the office, and this makes a lot more sense than having different processes on different platforms," Piercy said.

When asked about other features she finds most helpful, she added, "I don't have to bounce between platforms and computer screens to see who charged what or when. I can just go into the Successware platform and see who the customer was, how much was charged, when it went through and if I need to process a refund or do some other work for a customer. It's instant and so user-friendly. Time is money, and using Payments has definitely saved me time. I'm very glad we made the switch."

A study by FMI Consulting found that 95 percent of all data captured in the construction industry goes unused (FMI Big Data Report). Additionally, construction teams spend 13 percent of their working hours looking for the correct project data and information to keep projects moving forward.

With the number of companies in the US construction industry growing 2.5 percent per year on average over the last five years (IBIS World, 2023) the marketplace is only getting more competitive.

Competition is no less intense in the subcontracting world. According to a study released by Billd earlier this year three out of five subcontractors grew their revenue in 2022, but more than half saw a decrease in profitability. Experts say most of the blame lies in subcontractors' two most considerable costs—materials and labor. Compounding the problem, the ever-competitive market is making it hard for subcontractors to raise bids to account for these rising expenses.

Facing these truths, Matthew Gurley, co-owner of 3G Drywall, Liberty Hill, Texas, turned to a software provider for help. **eSUB Construction Software** has helped the company spot problems in change orders and submittal, saving time and money.

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"It has saved us money one way or the other, whether in bottom-line dollars through error reduction and catching things we otherwise wouldn't, or in time and effort gained back in efficiencies," Gurley said.

One of the most considerable efficiencies Gurley has seen 3G gain is in administrative tasks. He said before getting eSUB in the hands of his workers, the company did all its submittals in spreadsheets.

"One person would have to be in charge of it," Gurley said. "If two people were trying to (edit) at the same time, or if somebody is trying to manipulate one and they change the formula, then it changes it for everybody. Then you have to re-save it, and it's just a nightmare."

Gurley said he was initially attracted to invest in the better technology a few years ago because of its ability to handle purchase orders. With eSUB, his project managers can now order materials for their own jobs, increasing the speed of processes and reducing the dependency on one person.

"We used to have to take an Excel spreadsheet and change the PO number every single time and just hope you don't mess up a formula," Gurley said. "But with eSUB, it's easy to create separate purchase orders in the software when needed. Now, the project manager is ordering all the materials for their own jobs. It's so much easier."

eSUB's CEO, Erich Litch, said the company spent the last couple of years reimagining and recreating its software from the

ground up. The goal, he says, was to build the best user experience in construction software today.

"We've done studies with various customers," Litch said. "Typically, the average customer will get anywhere from a 20% to 30% productivity improvement (by using) the software. With better information and more real-time access to information, you're able to actually capitalize on additional revenue opportunities, either through change orders or other avenues."

For a free demonstration of eSUB, visit <https://discover.esub.com/schedule-a-demo>.

### Valves & Fittings

Fieldpiece Instruments has released a new line of hoses and fittings featuring two key types of premium hoses: charging hoses and vacuum hoses, with accompanying accessories and a variety of different fittings perfect for all HVACR charging, recovery and evacuation needs.

"Every Fieldpiece product is designed to make the HVACR pro's job easier, faster and better—and our



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new hose line is no exception,” explains Jeb Ball, vice president of sales and marketing at Fieldpiece Instruments. “Our A2L-compatible, black hoses can withstand extreme use, and their unique color tagging system increases versatility in the field by making hoses easy to identify and customize.”

Fieldpiece designed its charging and vacuum hoses in a universal black to allow each hose in a set to function as a spare for any other, removing limitations that technicians typically experience when using traditional yellow, blue and red colored hoses. Sturdy colored tags snap onto each hose for identification and customization. This contemporary approach reduces the number of spare hoses field techs must carry and decreases errors by allowing technicians to easily mark hoses that are specific for particular use cases or refrigerants. Additionally, the highly flexible hoses allow a tight bend radius ideal for cramped locations and compact storage, provide a good grip even in oily hands, and won't degrade over time from UV and oil exposure.

Fieldpiece hoses feature durable triple-ring crimped fittings for increased reliability even at high pressure, and greater pull strength than a traditional single-crimp or hex-crimp where if one crimp fails, the entire hose fails. With triple-ring crimped fittings, redundant crimping ensures the hose still maintains pressure—extending hose life with fewer leaks and less frequent need for replacement.

Fieldpiece hoses also have smaller diameter low-loss fittings and low-abrasion, knurled brass fittings, offering an improved

feel while still providing a solid grip. An added premium feature is the compact ball valve knob design that reduces inadvertent refrigerant release if bumped, protecting users from accidental refrigerant burns.

All hoses are UL 1963-compliant, third-party tested and compatible with industry standards (SAE J2196, SAE J2888 and SAE J513) for refrigerant recovery and recycling. Hoses are A2L-ready with durable four-layer construction; have neoprene gaskets for a lasting seal even when exposed to harsh temperatures and lubricants; and are certified for 4000 psi burst pressure and 800 psi working pressure.

Fieldpiece charging hoses are available in 3-packs or individually to fit both a quarter inch standard and five-sixteenths inch split system service ports. Vacuum hoses are sold individually to mate with either three-eighths or quarter inch port sizes. Accessories such as ball valve and open hose extensions as well as straight and angled split system adapters are part of the new lineup along with replacement gaskets and extra hose color tags. <https://www.fieldpiece.com/product-category/hoses-and-fittings>.

**Sporlan** designed the Type HX Thermostatic Expansion valves for residential and commercial air conditioning and heat pump systems. The Type HX valves feature a stainless steel capillary tube optimized for reliability and long life.

The single pushrod balanced port design ensures precise pin and port alignment, enabling the valve to maintain superior superheat control at all load conditions. The HX valve body is available with a straight-through flow configuration with chatleff or ODF (sweat) copper connections. Sporlan supplies the valve with either an adjustable or non-adjustable bottom cap.



#### Features and Benefits:

- Long-lasting, durable stainless steel diaphragm and weld design
- Single pushrod balanced port construction
- Unique design minimizes solid debris build-up
- Suitable for all common refrigerants
- Adjustable and Non-adjustable Superheat setting
- High-strength silver soldered joints with chatleff or solid copper fittings [sporlan.com](http://sporlan.com)

#### Controls

**Trane's** new Symbio 500 Unit Controllers for Airside and Water Source Heat Pumps offer a field- or factory-applied option that provides an easy drop-in replacement unit for the UC400 and replaces the UC600 on performance climate changes and air handlers. With its programming and communication flexibility, new Symbio units can be used across a wide range



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**Airzone**, a provider of intelligent and innovative HVAC control solutions, announced a new integration with Lutron, described by sources as the global leader in lighting and shading control solutions. This integration enables precise temperature control and category-leading HVAC energy efficiency via Lutron's Homeworks home automation system.



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Airzone specializes in smart HVAC system control. Over the past 25 years, Airzone has built an exclusive library of certified protocols for leading Inverter, ductless, mini-split, multi-split, and VRF manufacturers. Their products enable two-way control of modern HVAC systems, enabling temperature set point precision that is otherwise impossible—as well as system energy savings of up to 60 percent. Lutron luxury integrators can now offer their Homeworks customers these features via an integration using QSX processors.

Lighting control and HVAC are important environmental systems in any building with respect to energy consumption and homeowner experience. Sales of inverter/VRF systems are forecast to grow by over 13 percent per year over the next seven years according to research from Infineon, spurred on by federal and local energy efficiency rebates. This new integration with Airzone will allow Lutron customers to precisely control an Inverter / VRF HVAC system from any available trigger in the Lutron system including keypad buttons, schedules, Palladiom thermostats, and the Lutron App.

To control a single-zone unit, Airzone integrates with the Lutron Palladiom Thermostat via the Aidoo Pro.

For multi-zone applications, the integration takes place between the Airzone webserver HUB and the Homeworks QSX Processor, enabling features such as: centralized configuration and control of zone parameters; control of up to 32 separate Airzone HVAC control systems; seamless control of combined

radiant and air heating and cooling stages; remote error and warning detection of the HVAC unit. [airzonecontrol.com](http://airzonecontrol.com)

**Russelectric**, a Siemens Business, is a leading manufacturer of automatic transfer switches and power control systems,



manufactures UL-listed cogeneration systems for combined heat and power (CHP) applications, in which the generator sets are run to serve the connected load and heat is also recovered for other uses. Designed and built for mission critical facilities such as healthcare, research and development and campus facilities, Russelectric cogeneration systems are designed to provide maximum protection for operators and maintenance personnel and to minimize the danger of operator error.

All Russelectric cogeneration systems are UL listed, offer programmable logic controller (PLC) system controls, and are supervisory control and data acquisition (SCADA)-capable. They feature utility/generator and other power assets paralleling control, and provide active synchronization and soft loading. Systems use a utility-approved interconnecting protective relay system. [info@russelectric.com](mailto:info@russelectric.com) (email) or online at [russelectric.com](http://russelectric.com).



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WASHINGTON—The U.S. Department of Labor announced a proposed rulemaking to clarify the personal protective equipment standard for the construction industry.

The current standard does not state clearly that PPE must fit each affected employee properly, as do the Occupational Safety and Health Administration's general industry and maritime standards. The proposed change would clarify that PPE must fit each employee properly to protect them from occupational hazards. More online: <https://contractingbusiness.com/21269865>.

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# ASHRAE Standard 241 Approved

ATLANTA, June 24, 2023—American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) announced the approval for publication of its highly anticipated airborne infection risk mitigation standard for buildings, which the Society says will bring numerous benefits to occupants and promoting healthier environments.

ASHRAE Standard 241, Control of Infectious Aerosols, establishes minimum requirements to reduce the risk of disease transmission by exposure to infectious aerosols in new buildings, existing buildings, and major renovations. Infectious aerosols are tiny, exhaled particles that can carry disease-causing pathogens and are so small that they can remain in the air for long periods of time and be inhaled. Use of this standard would reduce exposure to SARS-COV-2 virus, which causes COVID-19, influenza viruses and other pathogens that cause major personal and economic damage every year. Standard 241 provides requirements for many aspects of air system design, installation, operation, and maintenance.

## Important aspects of the standard include:

**Infection Risk Management Mode**—Requirements of Standard 241 apply during an infection risk management mode (IRMM) that applies during identified periods of elevated risk

of disease transmission. AHJs (Authorities Having Jurisdiction) can determine when the enhanced protections of Standard 241 will be required, but its use can also be at the discretion of the owner/operator at other times, for example, during influenza season. This aspect of Standard 241 introduces the concept of resilience—ability to respond to extreme circumstances outside normal conditions—into the realm of indoor air quality control design and operation.

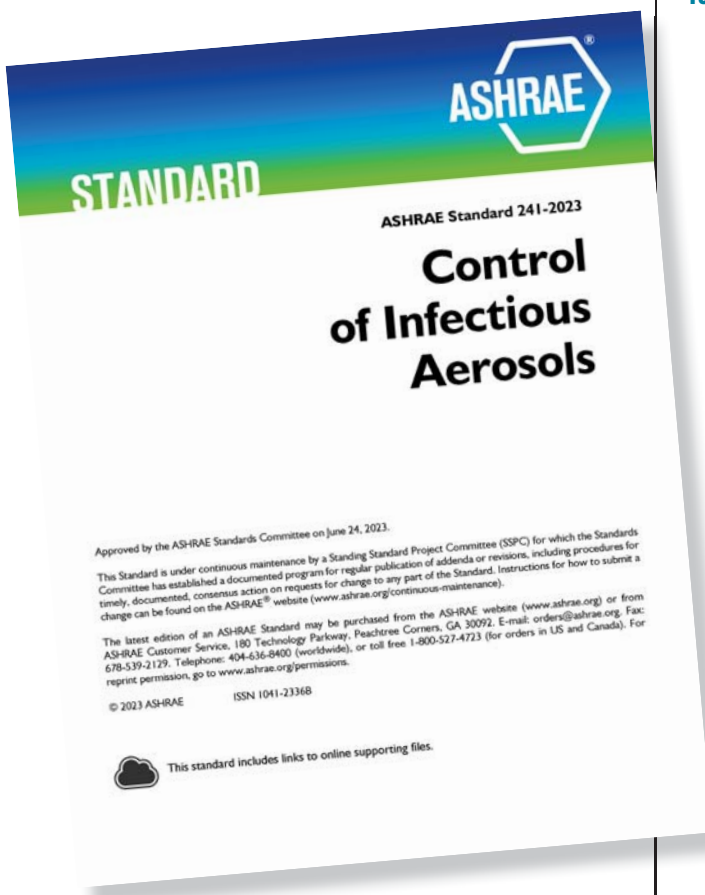
**Requirements for Equivalent Clean Airflow Rate**—Other indoor air quality standards, including ASHRAE Standards 62.1, 62.2, specify outdoor airflow rate and filtration requirements to control normal indoor air contaminants. Standard 241 breaks new ground by setting requirements for equivalent clean airflow rate, the flow rate of pathogen free air flow into occupied areas of a building that would have the same effect as the total of outdoor air, filtration of indoor air, and air disinfection by technologies such as germicidal ultraviolet light. This approach allows the user of the standard flexibility to select combinations of technologies to comply with the standard that best satisfy their economic constraints and energy use goals.

## Requirements for Use of Filtration and Air Cleaning Technology

- Dilution of indoor air contaminants by ventilation with outdoor air can be an energy intensive and expensive way to control indoor air quality. Standard 241 provides extensive requirements for use of filtration and air cleaning to effectively and safely achieve meet equivalent clean airflow requirements efficiently and cost effectively. These include testing requirements to establish performance and to demonstrate that operation does not degrade indoor air quality in other ways, for example by elevating ozone levels.
- **Planning and Commissioning**—Standard 241 provides assessment and planning requirements culminating in the development of a building readiness plan, a concept carried over from the work of the ASHRAE Epidemic Task Force. It also describes procedures for commissioning systems to determine their installed performance.

“Standard 241 represents a significant step forward in prioritizing indoor air quality,” said 2022-23 ASHRAE President Farooq Mehboob, Fellow ASHRAE. “By implementing the requirements outlined in this standard, we can improve the health, well-being and productivity of building occupants. This standard empowers building owners, operators and professionals to take proactive measures in safeguarding indoor environments. It’s an essential tool for creating healthier indoor environments and promoting sustainable practices.”

While not an ANSI standard, the consensus process from project approval, development and final approval of this standard, including a public review, took six months from authorization to completion and only four





Farooq Mehboob, left, presents William Bahnfleth with the ASHRAE Presidential Certificate of Honor, for his contributions toward the development of ASHRAE Standard 241.

months of development time dating from the first meeting of the project committee.

"Volunteers and staff dedicated their expertise and thousands of hours of their time to address this urgent industry and societal need," ASHRAE Presidential Fellow and Standard Project Committee 241 chair William Bahnfleth, Ph.D., P.E. "The development of this standard shows not only ASHRAE's ability to respond rapidly to a societal need, but also a steadfast commitment to the health and safety people in buildings everywhere. This is a significant achievement and milestone in connecting building design and operation with public health."

The Standard 241 committee will continue and work on improving sections of the standard adding additional requirements, clarifying requirements and developing tools to help the public use the standard. Industry and consumer-friendly resources such as courses, podcasts, factsheets and information events will be introduced in the future.

Standard 241 available now for presale in the ASHRAE Bookstore: <https://www.techstreet.com/ashrae/pages/home>.

## A New Era in Building Ventilation and Health

By Tony Abate

In late 2022, near the end of the Covid public health emergency, the White House contacted ASHRAE (The American Society of Heating, Refrigerating and Air-Conditioning Engineers) seeking guidance as to how to better ventilate buildings to help prevent the airborne spread of infectious illness.



Abate

The Covid pandemic showed that those who owned or managed buildings—from offices to residences—were ill prepared. The way most buildings were ventilated

fell far short in the opinion of many indoor air quality and health experts. And guidance on how to make indoor spaces safe from the spread of the virus was inconsistent.

Many buildings used unproven emerging technologies and strategies which were ineffective.

It was clear, a new standard on how to protect indoor spaces from the spread of infectious airborne illness was needed and the White House felt ASHRAE should be the guiding force behind this standard.

In December 2022, ASHRAE assembled a Special Project Committee under the leadership of William Bahnfleth, a former

ASHRAE president and a professor in the Department of Architectural Engineering at The Pennsylvania State University, for the purpose of forming a standard to provide this guidance.

The committee was made up of experts with backgrounds in the built environment. The committee was by invitation only. I was delighted to be part of the committee.

After many months and a lot of arduous work, in June, ASHRAE produced Standard 241, which establishes minimum requirements to reduce the risk of disease transmission by exposure to infectious aerosols in new buildings, existing buildings, and major renovations. (SEE SIDEBAR)

Infectious aerosols are tiny, exhaled particles that can carry disease-causing pathogens and are so small that they can remain in the air for extended periods of time and be inhaled.

Implementing this new standard would reduce exposure to SARS-COV-2 virus, which causes Covid 19, influenza viruses and other pathogens that cause major personal and economic damage every year.

The key elements of Standard 241 are:

- Guidance as to enhanced building measures to take, to reduce the

spread of airborne illness.

- Establishing Equivalent Clean Air for infection rates where the space can use air cleaning instead of just increased outside air ventilation.
- Requirements as to the performance and safety of air cleaning devices.
- Requirements as to operations and maintenance of building systems to comply with the standard..

Standard 241 is a game changer for many indoor air quality businesses. Our active continuous technology is tested and proven effective at reducing bacteria and viruses and will add to the equivalent clean air rates in Standard 241 without the need for mechanical re-engineering. Also, by using less outside air the building will use less energy and reduce its carbon footprint.

Standard 241 is a major advance in making our building healthier. And as important, it's created a new emphasis and urgency to improve ventilation so our country will be better prepared for the next pandemic. It's a groundbreaker that will pay huge dividends in our future.

**Tony Abate** is vice president and chief technology officer at AtmosAir Solutions, an indoor air purification and monitoring technology company in Fairfield, CT.



# How to Manage Online Reviews

As you begin to seriously consider your online reviews, here are a few tips to handling reviews professionally.

It probably comes as no surprise to most home service business owners that a customer's journey to find them starts online.

Of course, most potential customers immediately turn to Google or other search engines these days. But, did you know that nearly 60% of consumers run an even deeper internet search on your company and a whopping 90% also read online reviews before they pull the trigger?

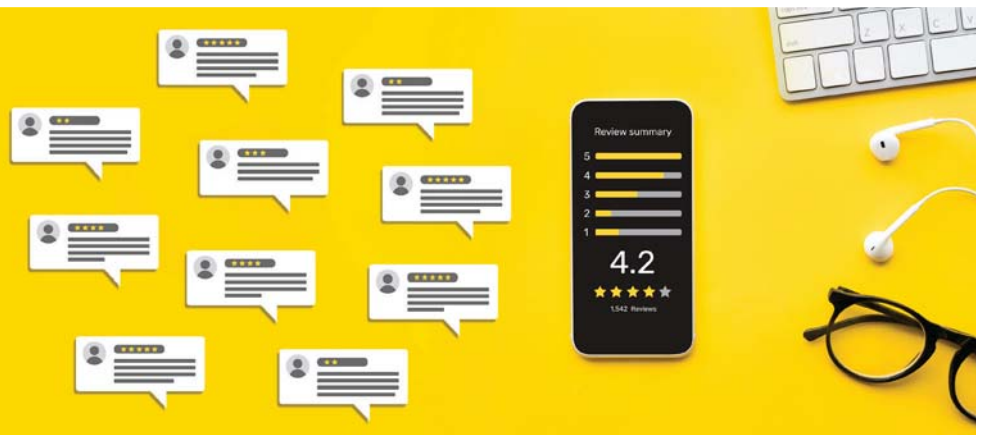
And, human nature being what it is, it should also be expected that when people are happy with their service, they are less apt to write a review unless they're prompted by a

competitor follows a few cues and internet bread crumbs, they can call you out or even sue you. It's not worth it.

## Read and Respond Promptly

If you are operating a healthy business, this task can be daunting because of the sheer number of reviews. But you need to stay on top of all your reviews—good and bad. For good reviews, simply acknowledging them should be enough. If someone takes the time to write a good review, it's just good business to respond with a "thank you" or other form of recognition.

**People want to see that a real person is responding to their reviews, because they are looking to make a connection to have their good word or complaint heard.**



friendly reminder to do so. However, when someone is very unhappy with their service, they are far more likely to take to the internet to complain.

If you aren't paying attention to your online reviews, you might be missing an opportunity to correct misconceptions and assure readers that you are paying attention to your customer complaints.

This is not an area to take lightly. A home service public relations agency or reputation management firm might be necessary to keep up with these reviews if you don't have an employee who can be dedicated to this task.

As you begin to seriously consider your online reviews, here are a few tips to handling reviews professionally.

## Don't Write False Reviews!

This has been tried many times and it rarely ends well. Keep in mind that this is not only unethical but can make your company seem petty and seriously damage your credibility and trustworthiness if consumers find out that you've been writing good reviews for yourself while bad-mouthing your competitors.

Consumers aren't dumb. No matter how sneaky you might think you're being, you probably aren't as inconspicuous as you think you are. Internet users can generally figure out which reviews are real and which are fake from the tone and issue. And, if your

For bad reviews, remember that your response will be seen by everyone. Even if you plan on calling the reviewer, you need to respond to the complaint online so that future readers will see that you are responsive.

You can keep your responses simple and still get the point across to potential clients that you are working on or have already remedied the situation. There is no need to rehash the issue online. Simply note that you are acknowledging the complaint with empathy and state that you are contacting the reviewer offline.

But, whether the review is good or bad, you should try to answer them quickly. Letting reviews languish online for months with no acknowledgement tells potential customers that you don't care enough about your customers to recognize their efforts to provide feedback.

## Don't Try to Sell

You have a website, a sales team, customer service representatives and an advertising budget. And, with all those options, you don't need to drop sales pitches onto your reviews platforms. People know when they're being sold to, and they don't like this maneuver when they are trying to register a complaint.

The best way to handle a bad review is to talk to the customer as though they were a friend. You wouldn't try to sell your friend

a new service if they were less than pleased about the service they'd already received. So, don't do it to your customers, either.

## Make Your Response Meaningful

It's also imperative that you put some thought into your responses.

If you've ever gone to other review platforms and read through a series of answers to reviews and they all sound the same, you know that these responses are canned and probably not heartfelt. Customers can see that, too.

People want to see that a real person is responding to their reviews because they are looking to make a connection to have their good word or complaint heard.

**The way to mitigate bad reviews is to respond quickly and be sincere and professional in your response.**

## Ask for Reviews

If you're looking at your reviews platforms and don't seem to be getting many positive reviews, there's only one thing you can do to spur that action: ask your satisfied customers for reviews.

Many home service business owners and their service technicians have a hard time asking customers for these reviews but given how much stock potential clients put in real reviews today, it's a necessity. And, since so many consumers now read these reviews, it's perfectly acceptable to request your clients contribute to your Google Reviews and Yelp pages. Getting your techs to ask for reviews can be easy if you provide them with incentives.

You can also encourage your customers to leave good reviews

by printing out cards or instructions on invoices that provide them with advice on how to leave a review.

The most important thing to remember is to not take bad reviews so personally that you act out. It's understandable that you are proud of the work you've done to build your business, so when you see a bad review, it might be difficult not to be defensive.

Don't take it personally and lash out at the reviewer. Keep in mind that everyone on the Internet can see your response, and remember that the Internet is forever—deleting an inappropriate response to a bad review won't get rid of the screenshots others may have taken of your poor judgement.

This might be another reason to hire a public relations agency to keep up with your reviews, to respond in a

professional and timely manner.

Just remember that everyone gets good and bad reviews. The way to mitigate bad reviews is to respond quickly and be sincere and professional in your response. And, if you resolve the customer's problem well, you could always ask for an updated review. This can turn a negative review into a positive, which makes for great review reading. **CB**

**Heather Ripley** is founder and CEO of Ripley PR, an elite, global public relations agency specializing in the skilled trades, B2B tech and franchising. Ripley PR is recognized as the top PR agency for the home. For additional information, visit [www.ripleypr.com](http://www.ripleypr.com).

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# Benefits of Building Retro-commissioning

Green building improvement programs have the common goal of promoting and recognizing efficient, healthy, and sustainable buildings.

**S**ustainability in the built environment is an expansive industry and currently enjoying its time in the spotlight due to increased pressures from communities and government bodies to combat climate change. This growing focus on green buildings need not be limited to new construction or other large expenditures. Aging facilities have the potential to extend their years of service while also combating greenhouse gas emissions. But what is the best course of action? From building design initiatives such as net zero and electrification to renewables and green building certifications, it can be a complicated and overwhelming field to navigate.

Building owners, contractors, designers, and property managers may question if

they are pursuing the correct programs to minimize their facility's negative impacts on the environment. With all the initiatives, buzzwords, and fancy awards surrounding these initiatives, there are energy efficiency strategies available to buildings that cut through this noise. Strategies that are cost effective, quick to implement, widely abundant, and result in an immediate reduction in a building's impact on climate change.

## Why Focus on Buildings?

Existing buildings account for approximately 28 percent of global carbon-dioxide (CO<sub>2</sub>) making the sector a prime target for improvement strategies. The Intergovernmental Panel on Climate Change (IPCC) published a report to

highlight the consequences increasing global temperature increase from 1.5 degrees C to 2.0 degrees C. They include:

- Impacts associated with forest fires and the spread of invasive species (high confidence)
- Risks associated with saltwater intrusion, flooding, and damage to infrastructure (high confidence)
- Risk of sea ice-free Arctic Ocean during summer and the irreversible loss of many marine and coastal ecosystems (high confidence)
- Risks to marine biodiversity, fisheries, and ecosystems, and their functions and services to humans (high confidence)
- Risks from droughts, precipitation deficits, and heavy precipitation (medium confidence)

The climate change saga is at a point where we are working just to limit global warming to a surface global temperature increase of 1.5 degrees C. The goal is no longer to avoid the negative impacts of climate change because that opportunity has already come and gone. What we can do as an industry is to help avoid the potentially more catastrophic consequences of climate change that appear inevitable if global temperatures increase above and beyond 2.0 degrees C.

## Better Buildings/Better Environment

To combat climate change, there has been a notable increase in green building program participation as organizations attempt to mitigate their facility greenhouse gas emissions and gain recognition for their sustainability practices. While each program has its own specific objectives, they

**Strategies that are cost effective, quick to implement, widely abundant, and result in an immediate reduction in a building's impact on climate change.**



New Haven Green, New Haven, Ct.  
Photo 75644361 © Jon Bilous | Dreamstime.com

have the common goal of promoting and recognizing efficient, healthy, and sustainable buildings. The most prominent programs include:

- **LEED:** Administered by the USGBC, Leadership in Energy and Environmental Design (LEED) certification program is the most widely used green building rating system in the world. Available to virtually all building types, LEED provides a framework for healthy, highly efficient, and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership.
- **WELL:** The WELL Building Standard is a vehicle for buildings and organizations to deliver more thoughtful and intentional spaces that enhance human health and well-being.
- **ENERGY STAR:** ENERGY STAR certified buildings save energy, save money, and help protect the environment by generating fewer greenhouse gas emissions than typical buildings. To be certified as ENERGY STAR, a building must meet strict energy performance standards set by EPA.

There are also financial consequences for organizations choosing to ignore this global crisis. Many companies face pressure in the boardroom and from shareholders to be more accountable for the impact business decisions have on society and the world. Active involvement with emerging standards, such as ESG (Environmental, Social and Governance) is a necessity as organizations may encounter financial consequences for not participating. Public concern over the worsening effects of climate change will continue to drive environmental policy in a direction that brings awareness to these programs.

The current suite of popular green building programs delivers a wide range of benefits to participating organizations. These include sustainable and efficient designs for buildings, healthy and comfortable tenants, recognition, and accountability among peer organizations and the public. These programs are here to stay and will only become more integral to the building

design, construction, and management processes in the future. Building owners and operators are highly encouraged to review these programs and take inventory of existing and proposed building stock to identify opportunities to pursue green building certifications.

### Participation Trophies are Not Enough

The importance of green building programs cannot be understated; however, when it comes to combating climate change, it is but one of many tools organizations need to use to reduce their greenhouse gas emissions. In relying too heavily on these programs, companies may be overstating their commitment to sustainability and the positive impacts they are having on the environment.

This is usually not intentional, but simply the result of pursuing awards and accolades over taking less recognized direct action to implement energy efficient solutions. Organizations need to ask themselves if their efforts have been in pursuit of appearing green rather than being green. If it is the former, what insights can we provide to those organizations that might have fallen into the green washing trap? How can we help ensure an organization's sustainability efforts are not smoke and mirrors and that all avenues for building efficiency are being pursued?

### How Retro-Commissioning Fights Climate Change

A commercial building with LEED, ENERGY STAR, and WELL certification is not guaranteed to be operating efficiently. That can be a big problem for building owners looking to reduce greenhouse gas emissions and energy costs. Many green building programs are inherently passive, meaning there is no active monitoring of existing building stock beyond benchmarking. The energy use intensity of a building can provide good metrics for determining the need for energy efficiency improvements but does not provide insight into specific low-hanging energy efficiency measures.

One solution is to pair participation in green building programs with direct action through building optimization and retro-commissioning programs. Retro-commissioning (RCx) is a process that

optimizes building energy performance through the identification and implementation of low to no-cost energy efficiency measures, which can often be implemented without the installation of any new equipment.

This process can take less than a few months, is extremely cost effective, and can be initiated and occasionally revisited without any administratively intensive processes. RCx also avoids the rigidity of capital grade energy efficiency improvements, which are often dictated through long-term budget planning.

The retro-commissioning services umbrella also includes monitoring-based commissioning (MBCx), a more advanced form of RCx involving the installation of

**Many green building programs are inherently passive, meaning there is no active monitoring of existing building stock beyond benchmarking.**

analytical software to constantly monitor building performance and provide automatic alerts on opportunities for energy efficiency improvements and maintenance requirements. This technology gives buildings the confidence that all avenues for performance improvements are being pursued.

The retro-commissioning process is so essential to building operations and energy efficiency that some states are beginning to require larger commercial buildings to participate in retro-commissioning studies every so often. Until it is a requirement in every state, it is crucial that RCx be promoted and implemented wherever possible. These overall efforts can only succeed when high-level sustainable design a management initiates and practices are paired with direct quantitative action to improve building performance. **CB**

**Matt Zweibruck** is an energy engineer with the Energy + Eco group at ESD, a leading global engineering firm specializing in mechanical, electrical, plumbing, fire protection, life safety, structural, and technology engineering. He possesses expertise in the demand-side energy services industry and is passionate about identifying and investigating the feasibility of energy conservation measures for large commercial, educational, and medical facilities. Matt has worked with clients and completed projects in retro-commissioning, energy auditing, project management and building data analysis.



# In Control

OEMs and a geothermal contractor share information on projects that are using innovative HVAC controls systems for commercial projects.

## From One Energy Saver to Another

*CVEC required an HVAC system that was highly efficient, easy to maintain, quiet, comfortable and centrally controlled.*

Chippewa Valley Electrical Cooperative (CVEC) began building their new headquarters office in the fall of 2014. When it came time to select an HVAC system for its new facility, CVEC felt it had to lead by example. The HVAC system needed to be highly efficient, easy to maintain, quiet, comfortable and interlocked with a make-up air system using centralized controls. A variety of systems were reviewed for the project. These included traditional water source heat pumps (WSHP), water cooled VRV, and four-pipe fan coils. After thorough analysis, a Daikin water cooled VRV-W heat recovery system with i-Touch Manager with BACnet® interface was selected. A Daikin VRV-W heat recovery system provides a highly efficient heating and cooling solution for the variety of fan coils located throughout the building's office space.

Compared to the previous office space with baseboard electric heating, the new office, with multiple fan coils, provides more zoning control and subsequent comfort. VRV-W condensers are connected directly to a closed-loop geothermal field providing additional efficiency opportunities and the ability for the VRV system to provide heat in extreme Wisconsin winters. A small, single computer equipment server room required 24-hour cooling

and individual temperature control. Wall space for computer racks was too valuable to hang a wall unit, and using a ducted unit for only one room didn't make sense. A single 4-Way Blow Ceiling-Suspended Cassette was installed centrally within the computer room, but not over top any computer equipment. This was a perfect application to simply attach the low-profile cassette unit to the concrete ceiling.

A non-VRV system conditions other portions of the facility. The geothermal water loop also supplies heat to water-to-water heat pumps. The heat pumps provide hot water for in-floor radiant heat in an equipment bay and four feet inside the perimeter of the building. The Daikin VRV system fits the budget of traditional WSHP equipment, while offering high efficiency and the ability to consolidate the condensing units in one mechanical room. Additional performance gains, as compared to the old, previous office space with electric base board heating was captured through the VRV system's ability to modulate condenser water flow according to the building's heating and cooling demand. Water flow was modulated using customized programming implemented through a Daikin i-Touch Manager (iTM) centralized control and add-on control modules. The iTM and add-on control modules were also able to control non-VRV related equipment including bathroom exhaust fans and energy recovery ventilators for the office area and makeup air control for the equipment bay area. Daikin recently reached out to Chippewa Valley and the mechanical engineer responsible for the design after a full year of occupancy.

"I'm convinced water cooled VRV systems are a viable alternative to traditional systems," said Todd Armstrong of Apex Engineering. "They cost about the same to install as WSHP systems and also offer additional efficiency and maintenance benefits. Owners like the idea of being able to consolidate the compressors in one location as well."

CVEC has been very impressed with their VRV-W water cooled system. "The power bill for the entire year, using the VRV system, was equal to one month's heating bill with the old system," said Russ Falkenberg, Director of IT and Member Services, CVEC.

*Case study provided by Daikin Applied.*



DAIKIN EQUIPMENT • 18-Ton VRV W-III Water Source Heat Recovery • 4 Branch Selector Boxes • 13 FXMQ DC-Ducted Concealed Ceiling Unit • 1 FXUQ 4-Way Blow Ceiling-Suspended Cassette • 1 Intelligent Touch Manager (iTM) • 1 BACnet® Client • 1 BACnet® Server with add-on control modules • 14 BRC1E73 Navigation Remote Controller  
*Daikin Applied*

## Moving Pictures, Steady Comfort

*Improvements to theater chain result in more closely controlled temperatures and better indoor environmental quality.*

Trane®—by Trane Technologies and Santikos Entertainment collaborated on comfort crusades to improve the movie-goer experience at six Santikos theaters in San Antonio, Texas. The result has been an annual

energy savings of thirty percent, as a result of comprehensive energy and infrastructure upgrades.

The annual savings involve 3,800,000 kWh in electricity. Using the EPA's Greenhouse Gas Equivalency Calculator to convert to carbon metrics, this is equivalent to the annual energy consumption of approximately 340 households. The impact of these improvements can be felt year round, even during the peak summer season of 100+ degree temperatures and extreme humidity. Santikos guests enjoy a comfortable indoor environment, with more closely controlled temperatures and better indoor environmental quality (IEQ) from well-ventilated air and consistent humidity, while keeping costs low.



Trane

Trane® light commercial rooftop units that incorporate eFlex™ technology or custom programming through drive kits precisely match output to the cooling demands of the space. They operate at their fastest levels when demand is high and modulate to slower levels when demand is low. The Trane® rooftop units are part of the integrated system contributing to the comfortable indoor environment quality Santikos achieved across its theater fleet.

To meet Santikos' needs and high standards across a range of IEQ measures, including thermal comfort, air quality and acoustics, the new Trane HVAC equipment features advanced ventilation and filtration, and a web-based building management system that can be adjusted in real time from a central location to optimize efficiency and adapt to changing needs posed by the sub-tropical climate and the dramatic changes in theater occupancy throughout the day.

"We are honored to collaborate with Santikos Entertainment to help make the San Antonio area a better place," said Jared Lambert, account manager, Trane. "Their commitment to the community is only equaled by their commitment to guest comfort. We are proud to support both with highly efficient solutions that help create a better indoor environment while reducing energy use, all of which will benefit the community for years to come."

The Trane system features variable speed technology which eliminates the noise created when traditional equipment switches on and off to maintain temperature. This is especially beneficial in movie theaters where sound is as important as comfort in the overall guest experience.

Following the successful installation, Trane presented Santikos Entertainment with an Indoor Environment Quality Award for implementing three of the essential elements of IEQ in its theaters, including indoor air quality, thermal comfort, and acoustics. *Case Study provided by Trane*

## Contractor Appreciates Innovative Geothermal Monitoring

*Geothermal diagnostic system offers functionality of DDC for lower installation costs, lower setup time, and a more user friendly experience.*

Comfortworks Geothermal HVAC Systems is a leading geothermal contractor based in Oklahoma City. Chairman Dan Ellis said the company has installed geothermal systems in more than 5 million square feet of commercial property and for more than 4,000 homes. The company's expertise is off the charts, but it continues to adopt the newest technologies from ClimateMaster to stay relevant.

The latest innovation they've adopted is iGate2, ClimateMaster's new remote diagnostics system. iGate2 provides a real-time view of system data and schematics for performance, required maintenance and replacement.

"We've been using WiFi-based energy management systems since 2013, however the ones that have been available are third party. They're not from the OEM, so they don't integrate the equipment directly to the energy management systems that are available in the cloud," Ellis said.

"iGate2 takes us to the next level. We can now remotely see everything that the unit can see. On the more advance units, that includes suction pressure, head pressure, liquid line temperature, and the position of expansion valves and reversing valves. I can see as much remotely as I could with a technician hanging sensor all over the unit. It's literally right there. It's a fantastic diagnostic tool."

iGate2 eliminates the need for a controls subcontractor to make changes and monitor performance details, and enables Comfortworks team to be proactive rather than reactive should problems arise. Comfortworks will include monitoring as part of a service agreement.

"With iGate2 you can monitor and schedule other devices that are part of the system, and most commonly with water source e pump systems, you may be scheduling fans, energy recovery units or DOAs units. It provides data on exhaust and make-up air. We monitor air temperature coming off the ERV and if there's any internal faults. If the pump fails, we immediately get a fault message, and we can even set it up to automatically start the other pump."

Comfortworks has installed iGate2 on systems as large as 500 tons that contain hundreds of water-source heat pumps.

"They're working perfectly, and everybody likes them. They also store historical data tracking going back at least one year," Ellis said. **CB**



# What's Your Refrigerant Plan?

It's not complicated to be up to speed on the many changes in the world of refrigerants. A Chemours expert provides his take on an industry working through changes like we've never seen before. By Terry McIver

**T**wo technical issues are at the top of the list in refrigerant world today: what are supermarket refrigeration customers to do with older, existing equipment, and what refrigerants are becoming preferred options for new equipment?



Pansulla

Andrew Pansulla, technical service engineer, the Chemours Company, says many of the conversations he and his colleagues are having with end-users, distributors and contractors fall into those two categories.

"There is an installed, aging base of equipment that's using high Global Warming Potential (GWP) refrigerants, and in some cases, some equipment is still charged with R-22," Pansulla said, during an interview with *Contracting Business*. "Customers are trying to figure out what to do with this equipment."

Pansulla said people are constantly installing new equipment, and in light of some of the proposed regulations, they're wondering if the refrigerants that are used for retrofits make sense. "Or, they will ask about installing A2L refrigerant in new equipment. They may also ask if they have to do something off

the cuff or different, like a cascade system or CO<sub>2</sub>. Those are the main questions we're getting," he said.

## A2Ls: For New Equipment Only

A2L refrigerants—which have shaken up the refrigerant industry due to their "mildly flammable" classification—are to be used in new equipment only. A2Ls have been thoroughly tested and building codes are gradually being changed to allow for their use in public places.

"If you have a piece of equipment that's reached the end of its useful life and is also using a high GWP refrigerant, you're likely

**A2Ls have been thoroughly tested and building codes are gradually being changed to allow for their use in public places.**

going to be looking at replacing it with an A2L system, based on the new safety standard designs," Pansulla explained. "Published guidelines such as UL2-89, and ASHRAE 15 currently have language that enables the use of A2L refrigerants. Also, EPA SNAP Rule 26 was recently proposed by the Environmental Protection

## Options for Retrofit and New Systems

"Chemours offers two zero-ODP, low-GWP-refrigerants in our Opteon™ XP portfolio that are well suited for medium-temperature refrigeration," Andrew Pansulla explained. "Those are Opteon™ XP40 (R-449A) and XP10 (R-513A). Both refrigerants are ASHRAE A1, non-flammable refrigerants, designed for applications that require use of a non-flammable refrigerant, such as a **retrofit** application. One of the primary goals of these refrigerants is to extend the life of existing equipment designed to operate with an incumbent HFC or HCFC. While alternatives with lower GWPs will come into the market, these refrigerants will continue to be very important to a larger refrigerant management plan. This is because there are limited other products readily available that can meet or exceed the performance of an incumbent system



Opteon XP40 was used to retrofit this system in a Boston supermarket. The Chemours Co.

design while utilizing a nonflammable refrigerant.

"Opteon™ XL products are zero-ODP, low-GWP mildly flammable refrigerants. The portfolio includes: XL10 (R-1234yf),

XL20 (R-454C) and XL40 (R-454A) for refrigeration and Opteon™ XL41 (R-454B) for air conditioning. All Opteon™ XL refrigerants are A2L, mildly flammable refrigerants, **for new equipment only**, not retrofits."

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## HFC Phasedown Schedule and Consumption & Production Allowance Caps

Year	Consumption & Production Allowance Caps as a Percentage of Baseline	Estimated Consumption and Production Allowance Caps in MMTEVe*
Baseline	Consumption: 303.89 MMTEVe, Production: 382.55 MMTEVe	
2020-2023	90 percent	Consumption: 273.5 Production: 344.3
2024-2028	60 percent	Consumption: 182.3 Production: 229.5
2029-2033	30 percent	Consumption: 91.2 Production: 114.8
2034-2035	20 percent	Consumption: 60.8 Production: 76.5
2036 & after	15 percent	Consumption: 45.6 Production: 57.4

From 2024 to 2028, HFC refrigerant consumption and production will be capped at 60 percent of baseline supply. The Chemours Co.

Agency, for which the comment period ended on July 10. That SNAP ruling includes the use of A2L refrigerants in most—if not all—refrigerant allocations for supermarkets. There’s been a lot of interest in A2Ls such as R-454A and R-454C for field trials, and codes in certain jurisdictions are updated to allow the use of these refrigerants. The standards provide strong guidance on how to use these refrigerants safely.”

### Answer Man

Pansulla stated clearly that one of the goals the industry hopes to see is that end users “see no difference” in operation with the newer alternative refrigerants.

“The first thing I look at, because I think it is the most clear and concise, is the proposal for the technology transition rule. It reads that, in the United States, if this rule is put into practice, on certain established dates, there will be GWP limits for new equipment. All of that is embodied in the AIM Act, which gives those GWP limits, but it is also part of the larger HFC phasedown effort in the US,” Pansulla said. Those have been the big questions that encompass the contractor and end users’ larger themes: how to build an effective refrigerant management plan.

“One question I like to pose to end users is, let’s say there is a major leak and you lose the refrigerant charge. What will you do about that, understanding what your retrofit options are, the life of your equipment, what type of training contractors have and contractor availability? All of those play into the larger theme of understanding which refrigerants you want to use.

Chemours is working to be certain refrigerant end users are aware of some of the retrofit gasses that are available, should they need to or want to move to lower GWP refrigerants, such as R-449A or R-513A. “One big thing we try to educate the industry on is R-404A. If you’re still installing R-404A I would strongly reconsider that, because if you look at how the AIM Act is structured, R-404A is not a long-term solution.

“In the contractor sector, the losers will be those who have not stockpiled and recycled and reclaimed used refrigerant,” he warned.

Reclaiming used refrigerant is a big piece of the transition puzzle, because not every older refrigerant will be gone anytime soon. “Historically, when refrigerants were cheap and available, the reclaim option was always there,” Pansulla said, “but it wasn’t seen as a value-added piece of a business. Now, refrigerant reclaiming will play a big part in refrigerant management. Supermarkets will have 3000 pounds of refrigerant in their stores, and that’s an asset they can use to offset costs for future replacements, or as a service gas at other properties. There are several different ways you can use reclaimed refrigerant. That will be something everybody’s going to be asking about in the next couple of years,” Pansulla predicted.

### Upgrading Systems: When and How

What are the major considerations for knowing when and how to upgrade to new refrigerant systems?

“**First** and foremost, consider the age of the equipment. Equipment wasn’t designed to last forever. Mechanical things will wear out over time, and it’s important to know if it’s reached the end of its useful life,” Pansulla said. “**Next**, we’ve seen people try to prioritize those stores that are ‘leakers,’ and [for whatever reason] leak more refrigerant than others. Likely this is a good opportunity, using some of the regulations, to address those stores and button up the leaks, and possibly transition to another refrigerant if it is using something not as prevalent in the industry.

“**Third**, if you have a lot of certain refrigerants that are impacted by regulations, those are the ones it could make sense to proactively retrofit to create a reclaim source of gas that could be used for service or sold back to the market,” Pansulla continued. “I’d say those are probably the major considerations: age and condition. If the store systems are leaking and are using refrigerant no longer used in new equipment.”

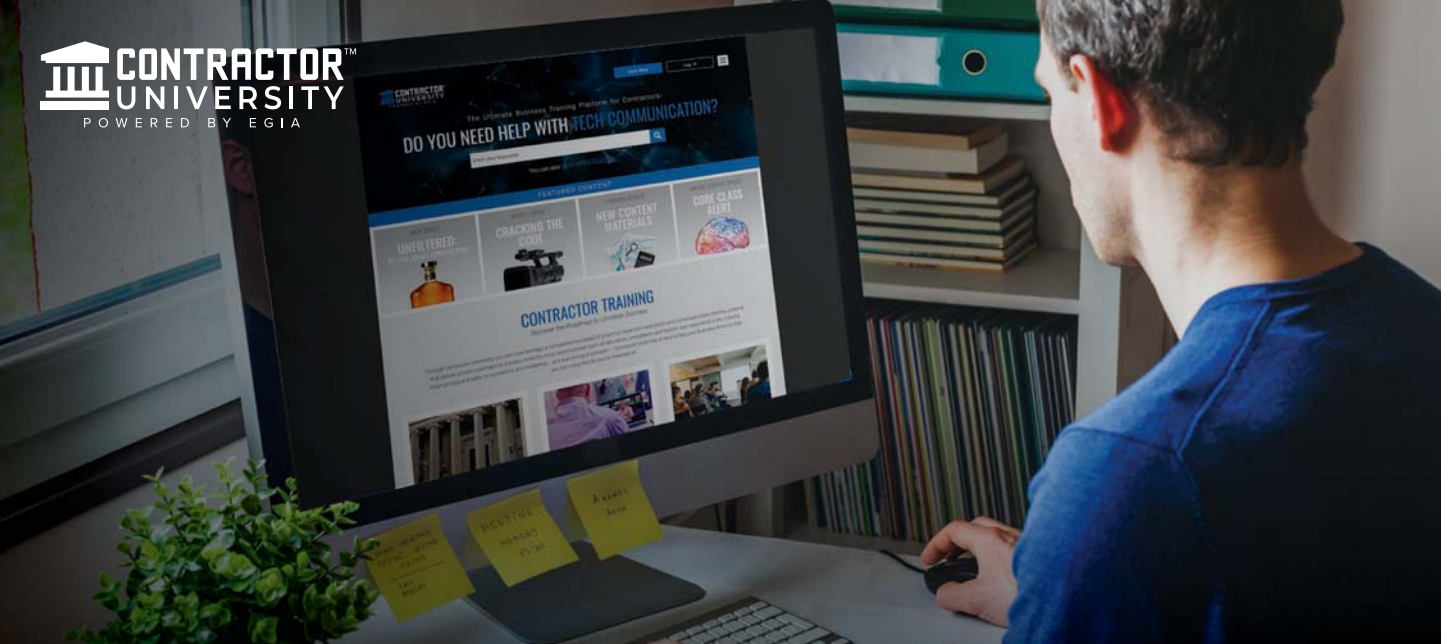
### Seek Out Training

Education includes seeking out the best knowledge from leading resources.

“I can’t stress enough the importance of staying in tune with everything that’s going on, in the sense of proactively looking for training. Practically every OEM in the refrigeration industry, and Chemours, provides training programs in their different realms of knowledge. So there’s a lot of great information out there and people who would be happy to set up training classes with entire contracting companies to make sure people are using these products the way they are intended to be used,” Pansulla advised.

Pansulla is one of a team of Chemours training advisers who visit contractors, end users and original equipment manufacturers, “making sure they’re in touch with the ever-changing world of refrigerants. We’ll provide a half-day class, and an entire company will attend. We’ll go over regulations, R-22 retrofits and A2Ls. We provide those trainings directly with contractors as needed, and we have a strong presence with the training bodies that are out there such as ACCA or PHCC or HVAC Excellence. We go to the trade level and visit shops about using refrigerants correctly,” Pansulla shared.

“Having knowledge of what’s going on in the refrigerant world is knowledge that can set a contractor apart from their peers. It’s constantly changing, it’s important, and it needs to be done right the first time.” **CB**



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The program is heavily-focused on terminology and load calculations.

## Training Program for New Replacement Salespeople

Last month I detailed how to find, interview, and hire an experienced sales professional from outside of the industry.

This month, I'll go over the **5-day training program** I've used to train hundreds of residential replacement salespeople with no previous HVAC experience. As this training progresses, you'll know whether or not you've hired the right person. With the exception of one new hire, every single salesperson I hired closed their very first lead.

You won't make a person an expert in HVAC in five days, but they'll know enough to get started in this industry. If they're curious, ambitious, and motivated, they'll spend the rest of their lives getting the rest of it down.

To set the stage, the person you're training has the following qualifications/abilities:

- **Already an award-winning in-home salesperson** (siding, windows, carpeting, roofing, etc.)
- Mathematical proficiency, specifically in geometry and fractions
- Mechanical aptitude
- The ability to draw a floor plan of a home

Since salespeople earn their living with words, the training focuses heavily on terminology. It starts with the terms most often encountered by HVAC replacement salespeople. It's not necessary for them to be able to recite the dictionary definitions of the components of a home comfort system. They must be able to identify them and have a vague idea of what they do.

It would be helpful to supply them with a copy of the book, *This Old House; Heating, Ventilation, and Air Conditioning*, by Richard Trethewey. It's not perfect, but it's an easy read and more than adequate to get someone started on their journey toward a career in HVAC.

### DAY ONE

#### 8:00 AM - Furnaces

This is a hands-on session, during which you'll point out the various components of a furnace. Take them to your junk pile and point out the various components of some furnaces you've replaced.

Here's a list of the terms they need to understand:

- |                 |                                 |
|-----------------|---------------------------------|
| • BTU           | • Burner                        |
| • Input         | • Heat exchanger                |
| • Output        | • High limit control            |
| • Blower        | • Pilot                         |
| • Squirrel cage | • Electronic and spark ignition |
| • Flue          | • Thermocouple                  |
| • Induced draft |                                 |

- AFUE
- Combustion air
- Plenum
- Ductwork
- Horizontal and Vertical furnaces
- Codes/permits

#### 11:00 am - Load Calculation

The quickest way to teach someone how to do an accurate load calculation is with software, such as Wrightsoft's Right-J®. With the Right-Draw® option, the mobile app version will let you draw the structure and will instantly calculate the load once the building details are selected.

#### 1:00 PM: Lunch break

#### 2:00 PM: Air Conditioning

Once again, take them to some of your junk equipment in the back and go over the following components:

- |                     |                |
|---------------------|----------------|
| • Compressor        | • Capacitor    |
| • Freon/Refrigerant | • Contactor    |
| • Condenser coil    | • Time delay   |
| • Condenser fan     | • Filter drier |
| • Condensing unit   | • Lineset      |
| • Evaporator        | • SEER         |
| • Condensate drain  | • Ton          |
| • Air handler       |                |

#### 3:00 PM: Sales training

Your best bet is to use a book, audio book, or video series of an industry sales trainer whose work you approve of. I recommend my audio book, "Slacker's Guide to HVAC Sales on MP3."

#### Homework:

Provide them with a copy of your company's "Features and Benefits" list (there's one included in "Slacker's Guide to HVAC Sales") and have them memorize as much of it as possible overnight. They should be able to memorize at least a dozen of them, and I've had plenty of people memorize the entire list overnight, and even make up a few new ones on their own. **Note** - do not let them run any sales calls until they can recite at least two dozen reasons to buy from your company from memory.

### DAY TWO

#### 8:00 AM: Practical exercise

Go to a house and have the salesperson draw its floor plan and do a load calculation on it, preferably with no help from you.

#### 11:00 AM: Energy savings

The easiest way to determine the energy savings in replacing old, inefficient systems with new, high-efficiency systems is by using the free website, hvacopcost.com.

#### 1:00: Lunch break

Charlie Greer was voted "Favorite Industry Sales Trainer" and is the creator of "Slacker's Guide to HVAC Sales." For more info on Charlie's products and services, call 1-800-963-HVAC (4822) or go to [www.hvacprofitboosters.com](http://www.hvacprofitboosters.com). Email Charlie at [charlie@charliegreer.com](mailto:charlie@charliegreer.com).

## 2:00 PM: Company paperwork.

Go over how to use:

- Whatever app or book you use to price jobs
- How to properly fill out a proposal
- Job flow once a job is sold
- Commission sheets

## 3:00 PM: Sales Training

They've got to be able to tell people your "company story" and have a variety of closing techniques, which you should have in whatever industry-specific sales training materials you provide.

### Homework:

Have the trainee draw another home, run a load calc, then write up a proposal for that job.

## DAY THREE

### 8:00 AM: Check their homework

There will probably be a much of mistakes, and this could take all morning.

## 1:00 PM: Heat Pumps

Take them out to some old heat pumps you've replaced and go over its components. Specifically:

- Reversing valve
- COP
- HSPF
- Defrost cycle
- Balance point
- Duel fuel.

## 3:00 PM: More paperwork

Make sure they completely understand what financing you offer and how to do that paperwork

## 4:00 PM: Sales training

It's time for them to learn some techniques for overcoming objections.

### Homework:

Trainee video record themselves doing a complete presentation to the best of their ability.

## DAY FOUR

### Sales training:

Go to two separate residences (your home, the trainee's home, or the home of a friend or employee) and go through two complete presentations, from the greeting at the door, to the questionnaire and warm-up, to the equipment inspection, drawing the home, the load calculation, pricing it out, presenting it, and closing.

Take the trainee to a couple of installations in progress and have them meet your installers and happy customers.

## DAY FIVE

**Run actual leads.** I usually ran the first lead, with the trainee remaining absolutely silent during the entire process, unless I specifically ask for their input.

From there, they run the entire lead. If you've hired the right person, there's a good chance they're willing to go out on their own. **CB**

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## MARKETPLACE: PRODUCTS, EQUIPMENT & SERVICE

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NCI's new HQ has better proximity to several of the largest air conditioning markets in the country.

## NCI is on the Move!

It's official. As of August 1st, National Comfort Institute's (NCI) headquarters and main training center relocated to Morristown, a small eastern Tennessee town nestled between two amazing lakes and the Smokey Mountains. Morristown is just an hour from Knoxville, TN, and an hour and a half from Asheville, NC. It's also within four hours' driving distance to many cities in several southern states.

NCI's relocation, nearly a year in the making, was partially driven by geography, with better proximity to several of the largest air conditioning markets in the country. Coupled with our Southern California training center, we will have better coverage than ever. Of course, our many distributor partners will continue to help provide nationwide training coverage.

That classroom training space is complemented by a 1,400 sq. ft. *Live-Fire* hands-on training lab that is also equipped with big screens. For starters, we are installing six different HVAC systems, ranging from fully-ducted inverter systems and traditional heat pumps to gas furnaces and boilers. The lab will also feature several portable economizers and a kitchen exhaust system for our commercial training.

Another dedicated space features a 1,400 sq. ft. video studio designed to enhance NCI's signature online, live training with multiple cameras and working HVAC systems.

The Morristown facility provides more than 30 parking spaces and is within minutes of numerous hotels and area restaurants.

We also enhanced the original all-electric facility with a new natural gas line that will power the multiple combustion appliances, including furnaces, a boiler system, and a traditional water heater. We have plans for additional enhancements to the hands-on systems.

The team here at NCI is very excited about what is sure to be the most state-of-the-art High-



NCI's new Morristown, TN headquarters building and training center.

1,400 sq. ft. video studio and control room.

The atrium will include areas for students to lounge and catch up on emails.  
NCI



Moving to Morristown also created an opportunity to consolidate our training center and main offices into one space. The 11,000 sq. ft. remodeled facility, formerly a bank building and data center, is perfectly suited for NCI's recent expansion and growth. This growth includes the addition of three new industry-based instructors this Fall who will help us deliver more High-Performance HVAC training than ever across North America.

NCI's new HQ building features 5,500 sq. ft. of High-Performance training space. The main 1,600 sq. ft. classroom can accommodate 25+ students and features 65-in. LCD screens and other great amenities.

Performance HVAC training facility in the country. We will begin holding in-person certification classes here this Fall and most of our online classes.

Come visit us for the training and make extra time to enjoy the amazing lakes and mountains in Eastern Tennessee! **CB**

**Dominick Guarino** is President & CEO of National Comfort Institute (NCI) ([www.nationalcomfortinstitute.com](http://www.nationalcomfortinstitute.com)), the nation's premier High-Performance training, certification, and membership organization focused on helping contractors grow and become more profitable. His e-mail is [ncilink.com/ContactMe](mailto:ncilink.com/ContactMe). For more info on Performance-Based Contracting™, go to [WhyPBC.com](http://WhyPBC.com) or call NCI at 800/633-7058.



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