

# Contracting Business

SEPTEMBER 2022  
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HELPING HVACR MANAGERS RUN BETTER BUSINESSES SINCE 1944



## 2022-2023 GUIDE TO RESIDENTIAL HEATING

Also in this issue:

- BIM Phase 2, p. 38
- Greer on Loyalty Programs, p. 50
- Michel on the IRS, p. 56

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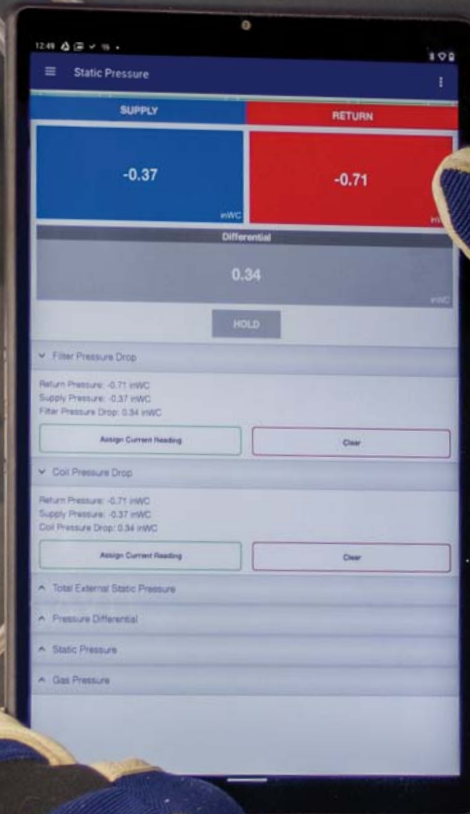
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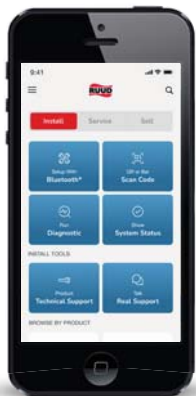
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\*Per a 2022 MIAT Residential HVAC Competitive Time Study on base and mid-tier Endeavor Line products and commercially available competitor units of similar product tier.



### COVER STORY

# 2022-2023 GUIDE TO RESIDENTIAL HEATING

**20** Features and benefits of the newest products from the leading manufacturers.

### COMMERCIAL HVAC

## **38** Beyond BIM

Using a constructible process in which data is shared and updated in real-time with all stakeholders optimizes the entire building design, build, and operational lifecycle.

### BUSINESS MANAGEMENT

## **40** Investing Options for Owners

There are four easy, tax-deferred investments for business owners to re-invest their hard-earned money.

### REFRIGERATION SERVICE TODAY

## **42** News & Products

NASRC launches information portal for natural refrigerants; Chemours announces Texas expansion.

## **44** Superheat & Subcooling Diagnostics

How to use superheat and subcooling measurements to diagnose what's happening inside the refrigeration circuit.

### COLUMNISTS

**6** **First Word** | Terry McIver

**50** **A Superior Level of Service** | Charlie Greer

**56** **The Rant** | Matt Michel

**ON THE COVER:** Cozy up to our copy and read about the newest heating products from the leading manufacturers.



### DEPARTMENTS

- 4** What's New Online
- 10** Products
- 14** Manufacturer News
- 16** Tech Update
- 54** Ad Index

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- Ready for CO Season?  
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- What's Your Marketing 'Beta'?  
<https://contractingbusiness.com/21246135>
- Fundamentals of Superheat & Subcooling  
<https://contractingbusiness.com/21246682>

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POPULAR ONLINE GALLERIES

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### Superheat & Subcooling Diagnostics

A new look at the basics of superheat and subcooling and how to measure them accurately.

<https://contractingbusiness.com/21247583>

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## Contracting Business

Group Editorial Director  
Buildings & Construction  
Mike Eby

Editor-In-Chief  
Terry McIver  
[tmciver@endeavorb2b.com](mailto:tmciver@endeavorb2b.com)

Art Director  
Julie Whitty

Senior Production Operations Manager  
Greg Araujo

Ad Services Manager  
Deanna O'Byrne



CEO, Chris Ferrell

President, June Griffin

CFO, Mark Zadell

COO, Patrick Rains

Chief Administrative and Legal Officer,  
Tracy Kane

EVP, Group Publisher - Design & Engineering,  
Energy, Buildings & Construction,  
Reggie Lawrence

EVP, Special Projects, Kristine Russell

VP, Buildings & Construction, Mike Hellmann

VP, Production Operations, Curt Pordes

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BY TERRY MCIVER, EDITOR-IN-CHIEF

# A Constant Amidst the Change

An email from a long-retired sales rep for a leading HVAC manufacturer made my day. It's the best email I've ever received, though I will admit there have been few.

This gentleman had lost all track of the industry since retiring in the early 1990s, and a week prior had asked if I could mail him some recent back issues. I did as he asked, which prompted a fervent thank you letter, along with his observations on what he noticed in the publication, and some reflections on HVAC industry days gone by.

He was surprised that the magazine had far fewer pages than it did in his day. Yes, I replied, that's in part due to the crash of 2008, the Internet, and the fact that today's media buyer is not fully aware of the value of print advertising to HVAC and refrigeration business owners.

He took note of the advertisements from LG and Daikin. LG now makes air conditioning? They certainly do, and Daikin is also a well-established leader, I replied. He recalled Daikin's earliest days in America, and was impressed by Daikin's growth, and its acquisition of Goodman and Amana.

He said he was expecting many brands to someday be consolidated with others, but realized that hasn't happened to a great degree. "The industry has expanded, with a lot of new or upstart companies having mushroomed," he noted. So true. There remains an astounding number of brands in the residential and commercial HVAC worlds.

He offered compliments for this publication's good mix of business articles and technical topics, and recalled some of the names from CB's storied past, specifically contractor/columnist Thomas "Doc" Rusk and Jeff Forker, a previous publisher of *Contracting Business*, who helped promote the industry and magazine's services to readers in many ways.

Beyond my being impressed by the gentleman's memory of the HVAC industry of 40 years ago, and of CB's contributions, I realized how his observations spoke to the unstoppable nature of change, both good and bad. The HVAC industry will continue to change, in its manufacturing methods, product offerings and in-field activity and offerings of HVAC contracting businesses and technicians. All change, however, must be to the good of the independent business and

its customers. HVAC technology will not change the world or alter what some believe to be serious climate issues, but it has provided and will continue to provide great benefits to homeowners and people who work and live in buildings large and small. It's up to the contracting business owner and their team of trained field technicians to bring solutions to customers, for the betterment of the many lives who trust in promises made. May they also be promises kept.

## HVAC Hall of Fame

Speaking of business excellence, the *Contracting Business* HVAC Hall of Fame Class of 2022 has been selected. Our inductees will be Tom Casey, Jr., Joe Cunningham and Stan Johnson.

Tom Casey, Jr. was a third generation owner of Climate Partners, Milford, Connecticut. He currently owns and operates Griffin Service in St. Johns, Florida. Climate Partners was a perennial winner of Contracting Business Quality Home Comfort Awards, and is a model of entrepreneurship and managerial excellence. His career has included consulting, presenting at industry events, and writing for industry publications.

Joe Cunningham was among the industry's first "comfort advisors," and was one of the first to reach \$1 million in annual sales. He is the founder and president of Success Track Network, founder of the Technical Arts Academy and the "Your Air Conditioning Company" training organization. He has also served and continues to serve as a consultant for Service Nation.

Stan Johnson was a founding member of and investor in Service Roundtable., and currently serves as facilitator of Service Nation Alliance Group and as an Alliance Coach. He was a major contributor to the rewrite of ACCA Manual J and other energy and comfort-related documents and procedures, and is a founding member and past president of Texas ACCA and a past chairman of ACCA national.

The Hall of Fame induction ceremony will be held during Service Nation's Service World Expo, October 18-21 in Tampa, Florida. Information on the show can be found at [www.serviceworldexpo.com](http://www.serviceworldexpo.com). The three inductees will be profiled in our October issue.

Congratulations to our three Hall of Fame members! **CB**



'The value of promises kept will never change.'

TOM CASEY  
Climate Partners  
Griffin Service

MIKE CONLEY  
Pioneer Heating & AC

VINCE DIFILIPPO  
DiFilippo's Service Co.

CHARLIE GREER  
HVAC Profit Boosters

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COMPILED BY TERRY MCIVER, EDITOR-IN-CHIEF

## PremiStar Acquires Mechanical Service, Inc.

DEERFIELD, Ill.—PremiStar, a leader in commercial and industrial HVAC, plumbing, and building automation services has acquired Mechanical Service, Inc. (MSI), a leading commercial HVAC contractor in Iowa City, IA. With this acquisition, PremiStar expands its service offerings and footprint in Iowa, maintaining focus on meeting the needs of customers in the commercial, industrial, health care, education, retail, municipal, government, and senior living market segments.

## New Resource for Dealer-to-Dealer Exchanges

SEATTLE—Aug. 15, 2022—HVAC business training and coaching organization Business Development Resources has launched an online resource to assist HVACR dealers arrange transfers of comfort equipment impacted by changing local, state and federal energy regulations, which set to take effect on Jan. 1, 2023.

The Equipment Exchange is a free service for dealers directly affected by rapidly changing energy standards and is intended for limited exchanges. BDR is not involved in any transactions and recommends dealers always contact their distributor partner first for their product needs.

“With the unprecedented number of new standards starting at the beginning of 2023, dealers may find some of their inventory is outdated overnight,” said Bruce Wiseman, president and owner of BDR. “BDR’s new online Equipment Exchange network allows individual dealers to post their available equipment, see listed products, and negotiate agreements so everyone has the equipment they need to serve their customers.”

“The goal of our Equipment Exchange is the overall benefit of our industry during a period of enormous potential

disruption,” Wiseman said. “Without a program like this, dealers could be stuck with equipment they can’t use, forcing them to absorb significant losses or pass them on to contractors and their customers. BDR remains committed to the distributors who are an essential part of this industry.”

## Bad Deal: ABC Slams ‘Tax-and-Spend’ Bill

WASHINGTON, Aug. 12—Associated Builders and Contractors has sharply criticized the recently signed “Inflation Reduction Act,” based on its extreme levels of spending, tax provisions and harm it could cause non-union workers.

“Democratic lawmakers now own the consequences of sending this radical bill to the president’s desk, including potential economic fallout, additional inflation, more workforce shortages and high materials prices that we could see in the near future,” said Kristen Swearingen, ABC vice president of legislative & political affairs. “It imposes anti-growth tax policies and injects hundreds of billions of federal dollars into the economy at a time when we are facing record-high inflation.

“Penalizing employers that pay wages based on experience, quality and market rates and limiting opportunities for millions of construction workers who choose not to join a union is no way to legislate, said Swearingen. “The so-called Inflation Reduction Act will provide an increased tax credit for private employers that impose Davis-Bacon prevailing wage requirements and government-registered apprenticeship labor-hour quotas. This unprecedented expansion of prevailing wages not only puts contractors that use industry-recognized apprenticeships at a serious competitive disadvantage when it comes to winning contracts for these critical energy projects, but it also limits the ability of many otherwise-qualified small businesses and skilled construction professionals from participating in these projects.”

**Read more at <https://contractingbusiness.com/21248764>.**

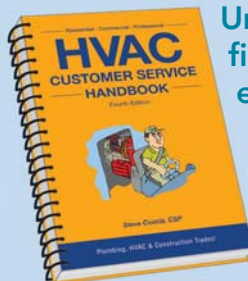
## HVAC Customer Service Handbook Exceeds 20,000 Copies Sold

August 1, 2022, Coscia Communications, Inc.

—Steve Coscia reports that his HVAC Customer Service Handbook has surpassed 20,000 books sold. The text, which is taught at more than 250 colleges and trade schools nationwide, teaches students about valuable soft skills, such as teamwork, displaying a positive attitude, personal accountability, hygiene, being on time, problem solving and communication skills.

Coscia—one of the HVACR trade show circuit’s most recognized presenters—reports that college advisory boards believe proficiency in “soft skill finesse” is essential for the future workforce.

“We have been teaching from Coscia’s HVAC Customer Service Handbook for years. One of our students won



Understanding of ‘soft skill finesse’ can be applied in every HVAC, plumbing or electrical services company.

first place in the customer service category of Oklahoma’s SkillsUSA competition. We attribute this win to Coscia’s textbook.” said Jimmy Hawley, HVAC Instructor, Tulsa Tech.

Now in its 4th edition, the HVAC Customer Service Handbook is available in electronic platforms, including VitalSource, MBS Direct and Amazon Kindle.

For more information, call Steve Coscia at 610-853-9836 or visit [www.coscia.com](http://www.coscia.com).

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dual readout thermometer, two-valve aluminum manifold, 60-in. hose set, Quick-Engage flare and swage, Tri-Tube Bender, service wrenches, hex key folding set, inspection mirror, Quick-Change magnetic nut driver, 9-in-1 multi-tool, and a backpack tool bag. [hilmor.com](http://hilmor.com)

With a 220 lb. capacity, large platform and wireless Bluetooth communication via the YJACK VIEW app, the Yellow Jacket wireless scale 68864 makes refrigerant



charge measurements fast and easy. Connect with any smart device and you are ready to go. With .05% accuracy and 0.2 oz. resolution, service technicians can count on precision measurements. Save the charging measurements

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[fieldpiece.com](http://fieldpiece.com)

to your smart device, and you have a permanent record for that installation or service call. Features a lightweight, durable design; stability control for accurate measurements; overload protection; an integrated handle; carrying case and 9V battery. [yellowjacket.com](http://yellowjacket.com)

Double-insulated 9-inch universal pliers from Cementex are designed for safe use in arc-flash environments. They are heat-treated and feature a compact head with serrated jaws and a useful crushing area, and a high-leverage design for greater cutting and gripping power. Designed for cutting round cable up



to 9.2mm or soft steel wire up to 2mm, their bypass cutting blades deliver excellent leverage and clean cuts. A yellow warning layer lies underneath the outer orange layer; if the outside insulation is damaged, posing a safety risk, the yellow layer begins to show, and technicians can know that they must replace the tools. [cementexusa.com](http://cementexusa.com)

The Snap Solo LED headlamp from Princeton Tec for HVACR contractors provides a lightweight, versatile and robust light that can accommodate technicians' many and varied environments and work situations. It changes from a headlamp to a flashlight to a secure stationary



mounted beam. With a twist, the lamp easily snaps off the headband. At the work site, the lamp can be removed and attached to any nearby metal surface where its magnetic backing holds it firmly in place to illuminate the task at hand. It comes with a dimming feature that preserves battery life, and a flash mode where an emergency strobe is required. [princetontec.com](http://princetontec.com)

Knipex offers a new ANSI-compliant tethering system and 1000V insulated tools for its tethered tools and attachments line. The additions include one ANSI-rated lanyard, two adapter straps and seven 1000V insulated tools. The tethering system includes a captive eye to keep the lanyard (38 in. in length) secured to the carabiner and a self-locking gate to prevent any unintentional opening. The adapter straps (13 in. in length) offer multiple ways to attach to personnel including from a belt, wrist or harness. The tether attachment is welded onto the multigrip handles for stable mounting and can hold a maximum tool





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load of 3.3 lb. The lanyards are made of gathered fabric that expands to 5 in. when under strain. [knipex.com](http://knipex.com)

The women's San Jose waterproof work boot from Keen Utility is now available in a waterproof option. The all-leather work boot includes a KEEN. LUFtcell comfort midsole for air-infused comfort, with nearly 100,000 air bubbles per cubic centimeter to reduce foot fatigue over time. The boot features an EH-rated, slip-resistant outsole that disperses liquids underfoot quickly for better surface area contact. Also features a roomier toe box and unobtrusive, asymmetrical aluminum safety toe caps that are 35% lighter than steel. [keenfootwear.com](http://keenfootwear.com)



Men's work socks from Darn Tough feature a high-density knit with three ingredients—Merino wool, nylon and Lycra—making them versatile socks for all environments. Breathable, moisture wicking and anti-odor, Merino wool makes these work socks preferable for sweaty feet



in work boots. If the weather turns cold, these same socks hold in heat, keeping your feet warm in even extreme cold. If you're looking for work socks for steel toe boots, the men's Steely socks have a cushioned toe box for comfort in safety toe shoes. For days spent walking on concrete floors, the full-cushion styles are thick work boot socks that pad your feet for extra comfort and rebound. [darntough.com](http://darntough.com)

ABB's ACH580 series of variable frequency drives can reduce site installation costs with an integrated redundant design, with all hardware in one package. A single main disconnect is interlocked with enclosure door and lockable in the off position. Redundant control can automatically or manually switch from lead drive to redundant drive upon a lead drive fault. [abb.com](http://abb.com)



The SynRA motor from Nidec is a patent-pending synchronous motor. When paired with the ID300 Perfectspeed integrated drive, it offers one of the highest efficiencies available for industrial and commercial pumping and HVAC equipment—with ratings at IE 4 and IE 5. It offers easy motor replacement without installing an entirely new system and controls. Smart technology results in less wear and tear on blower or pump systems by matching application demands with variable speed. The aluminum-cage design is magnet-free, for easy programming and compatibility with existing variable-frequency drives. [nidecmotors.com](http://nidecmotors.com)



The Danfoss VLT low hydronic drive continuously regulates harmonic suppression according to the load and grid conditions without affecting the connected motor. The total harmonic current distortion is reduced to less than 3 percent on grids with balanced mains, a minimum pre-distortion to less than 5 percent on grids with high harmonic distortion and 2 percent phase unbalance. Features such as sleep mode and back-channel cooling contribute to energy efficiency for low harmonic drives. The drive requires the same set-up and installation as a standard VLT drive. [danfoss.com](http://danfoss.com)



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## Daikin Applied Acquires Majority Interest in CM3

Daikin Applied Americas, Inc. announced in July it has taken a majority interest in CM3 Building Solutions, Inc., a Philadelphia-based service and solutions provider offering building automation and technology, energy services, security and fire protection, and HVAC support throughout Pennsylvania, Delaware and New Jersey.

Sources report this new relationship expands Daikin Applied's ability to serve customers across the entire lifecycle of their building systems and operation. Daikin Applied, a division of Daikin Industries, Ltd., the world's number one air-conditioning company, has a legacy of designing and delivering innovative HVAC solutions that provide superior comfort, and address larger societal concerns like improving indoor air quality and cutting carbon emissions. Its offerings include equipment, services and controls for commercial and industrial facilities.

"With CM3's solutions expertise, Daikin Applied will network its HVAC technologies with other building systems, such as security, life safety, retro-commissioning and energy services," said Nick Brazis, vice president of corporate development at Daikin Applied. "The connectivity effectively modernizes facilities and building portfolios to maximize performance. Customers will have an enterprise-wide view and command of their entire operation, as well as comprehensive data and analytics to reduce carbon emissions without reducing occupant comfort."

"Today, when buildings use 75 percent of the country's power and 40 percent of its energy, we need to help customers manage their entire environment to achieve the next level of efficiency and sustainability," said Jeff Drees, executive vice president, Daikin Applied. "We can maximize HVAC performance when we can fully assess and support the building

envelope. Our relationship with CM3 opens new opportunities to improve our customers' effectiveness."

CM3 will continue to operate under its current name and leadership including Bruce Michelson, president, John Hollister, executive vice president, and Tom Monahan, executive vice president. Cowen and Company LLC served as exclusive financial advisor to CM3.

## ABB to Acquire Siemens' NEMA Motor Business

ABB announced it has signed an agreement to purchase Siemens' low voltage NEMA motor business. ABB sources say ABB will see benefits from what is a respected product offering, North American customer base and able and active sales, operations and management organization. NEMA motors are manufactured in Guadalajara, Mexico. The business employs approximately 600 people and revenues of approximately \$63



Siemens' NEMA motor facility, Guadalajara, Mexico.

ABB

million in 2021. Financial terms of the transaction were not disclosed. The transaction is expected to close in the second quarter of 2023. This transaction is part of the ABB Motion business's profitable growth strategy. ABB expects to benefit from synergies such as R&D and supply chain relationships.

## APPOINTMENTS

Robertshaw Controls Company announced in August the appointment of John Hewitt as chief executive officer. Hewitt succeeds Mark Balcunas, who announced his



Hewitt

retirement from full-time service with Robertshaw, concluding a career with the company that began in 1979. Mr. Balcunas will continue to advise Robertshaw in key areas of the business going forward. Mr. Hewitt has served in numerous senior leadership roles during his more than 25 years of experience in both public and

privately owned industrial and technology businesses.

NIBCO, Inc. announced the promotion of Sally Boyer to director, marketing communications.

Boyer now assumes the responsibilities for the NIBCO NIBwomen's Conference and sales trainee program. Boyer will report to Dawn Bloch, vice president, customer engagement.

Boyer joined NIBCO in 1986 as advertising coordinator. During her 35-year career at NIBCO, she held several positions of increasing responsibility in-

cluding public relations manager; trade show manager; exhibits and print material manager; exhibits and public relations manager; manager, strategic communications; and manager, marketing communications.



Boyer

Boyer has been a charter member of the American Supply Association Women in Industry since 2013, and a member of the ASPE Affiliate Advisory Committee since 2010.



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## AIR CONDITIONING SYSTEMS

### Allied Air Enterprises

The LYNX™ 18 Inverter Heat Pump, available under the Ducane™, Concord™ and Allied™ brands, is a smart replacement or upgrade for greater versatility and performance. Quickly adaptable with a wide range of AHRI-rated system matches, the LYNX 18 works with most conventional 24v thermostats. QuickLink™ Inverter Technology uses intelligent algorithms to deliver a performance fit and fine-tuned temperature control with the widest range of indoor equipment in its class. [alliedair.com](http://alliedair.com)



### American Standard

The Platinum 18 heat pump is part of a new lineup of American Standard communicating equipment featuring American Standard Link, an innovative technology to simplify the installation, commissioning, and remote monitoring of variable speed HVAC systems.

Created to provide technicians with a “plug and play” experience, it assists with installation accuracy through automated configuration, charging and system testing; and it works with remote monitoring to provide quicker solutions and more efficient service calls.

Link provides the exact data technicians need for installation and troubleshooting on their own smart device.

A full line of American Standard Link equipment will be available to our independent dealer nationwide in Fall 2022. [americanstandardair.com](http://americanstandardair.com)



### Daikin Comfort Technologies

For the first time in North America, sources report, Daikin has launched a home comfort product featuring R-32, a refrigerant with one-third the Global Warming Potential (GWP) of the most common refrigerants currently being used in the United States and Canada.

The new Daikin ATMOSPHERA system featuring R-32 refrigerant from Daikin Comfort Technologies, Inc. is a single zone, ductless system that gains impressive efficiencies over its R-410A predecessor line, the LV Series, with up to 27.4 SEER, 13.8 HSPF and 16.3 EER ratings for ultra-efficient cooling and heating. Four



sizes of indoor and outdoor heat pumps are available from 9,000 to 24,000 BTU. [daikinatmosphera.com](http://daikinatmosphera.com)

### Fujitsu

Fujitsu's new, single-phase J-IV and J-IVs Airstage VRF heat pump systems serve heating and cooling applications between 3- and 5-ton capacities, making them ideal for the residential and light commercial markets.

The air-to-air heat pumps feature expanded heating operation ranges, offering full heating capacity at outdoor ambient temperatures as low as -15°F. The J-IVs offers efficiency levels up to 19.7 SEER and is available in 3- and 4-ton capacities, while the J-IV offers up to 19.8 SEER and is available in 3-, 4- and 5-ton capacities. J-IV models also allow up to 150 percent connection capacity of indoor units. With more than 11 types of indoor units, ranging from 4,000 to 96,000 BTUH, the J-IV and J-IVs meet a broad range of applications. [FujitsuGeneral.com](http://FujitsuGeneral.com)



### Goodman

Powered by inverter technology, Goodman's GVZC20 heat pumps deliver outstanding indoor comfort with up to 21 SEER cooling performance, sources report.

Featuring Smart Speed™ technology, Goodman inverter-driven systems help prevent common temperature swings experienced with single- and two-stage units, reaching indoor comfort settings quicker, while continually dehumidifying to balance heat load. A quiet, variable-speed ECM motor complements the inverter's superior acoustical comfort.

ComfortBridge™ communicating technology provides easy commissioning and diagnostics via indoor board Bluetooth using the CoolCloud™ mobile application. [goodmanmfg.com](http://goodmanmfg.com)



### Johnson Controls

Johnson Controls has launched a new line of 14.3 SEER2 residential air conditioners designed to meet the upcoming Department of Energy efficiency standards that go into effect January 1, 2023. The re-





We're here, and we're changing the way the industry does business. Committed to working as hard as you with a team of over 400 employees, a portfolio of more than 650 products and a dedicated sales rep in every region, we're listening and ready to help at [GEAppliancesAirAndWater.com](https://GEAppliancesAirAndWater.com).



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designed air conditioners are available in 1.5 to 5 tons and feature aluminum alloy micro-channel coils to ensure maximum energy efficiency and durability at an entry-level price point. The new product line is available for YORK®, Luxaire®, Coleman®, Champion®, Fraser-Johnston®, Guardian® and Evcon® brands. The new systems meet

the DOE required 14.3 SEER2 cooling efficiency targets as well as the EER2 requirements for the southeastern and southwestern U.S. regions. [bit.ly/JCISEER2](https://bit.ly/JCISEER2)

**Lennox**

The new SL25XPV Heat Pump is the most precise and efficient heat

pump available. Lennox' Ultimate Comfort System™, with the help of the SL25XPV, offers an unprecedented, whole-home comfort system that seamlessly and intelligently works



together to stay finely tuned to your home and offer consistently clean, perfect air. The SL25XPV was designated as one of the Most Efficient ENERGY STAR certified products in 2022 and boasts an efficiency rating of up to 24 SEER and up to 11.8 HSPF. The unit also features TruHeat Performance, which delivers a greater amount of heat than traditional heat pumps for rich, warm comfort similar to a gas furnace — even during the coldest outdoor temperatures. [Lennox.com](https://lennox.com)



**Rheem**

The Rheem Classic Series mini split single zone ductless heat pump provides home and business owners just the right amount of heating and cooling. The Rheem outdoor units emit minimal noise, as the unit limits the compressor and fan speed during high-speed operation. With the ease of installation in mind, the outdoor units have a base pan heater which prevents condensation from freezing on the unit. Additionally, long piping lengths between indoor and outdoor units provide flexibility and increased applications. This unit has a cooling capacity of 24,000 BTU/h and a heating capacity of 24,000 BTU/h. [rheem.com](https://rheem.com) / [ruud.com](https://ruud.com)

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## Trane

The Trane Platinum XV20i Heat pump is part of a new line of equipment featuring Trane Link, a revolutionary communication technology that simplifies installation, commissioning, and remote monitoring of Trane's variable speed systems. Trane Link assists with installation accuracy of the XV20i through automated configuration, charging and system testing. Technicians can ensure a speedier setup as Trane Link self-identifies the equipment, provides automatic connection through Bluetooth mesh, and utilizes standardized color-coated wiring. Through Trane Link, technicians also can experience more efficient service calls and troubleshooting, as the technology provides the exact data they need on their own smart device.

The full line of Trane Link equipment will be available to our independent dealers nationwide in Fall 2022. [trane.com/residential](http://trane.com/residential)



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# 2022-2023 GUIDE TO RESIDENTIAL HEATING

Read up on the newest models your customers can cozy up to for comfortable winter warmth.

## Airquest

Achieving up to 17 SEER2 (18 SEER) and up to 8.1 HSPF2 (9.5 HSPF) efficiencies, the Airquest® N4H7T Performance 17 heat pump includes integrated solid-state controls to make a smooth transition from heating to cooling. Designed for consistent comfort, the unit's two-stage compressor provides improved temperature control and removes more than 70% humidity than a single-stage unit, helping homeowners feel comfortable at higher temperatures.



The Airquest® N4H7T Performance 17 heat pump is built with a new welded aluminum outdoor coil technology that delivers improved corrosion resistance while satisfying future performance requirements.

The top-discharge design of this heat pump minimizes noise and improves air flow. Units are equipped with soft-mount isolation grommets that absorb sound and vibration to reduce noise at maximum performance.

All models include easy-access service valves and external high and low refrigerant service ports. The control panel of the Airquest N4H7T Performance 17 heat pump allows for quicker service access with only two screws. A b-flow filter drier is included with every unit, for easy field installation. [www.AirquestComfort.com](http://www.AirquestComfort.com)

## Allied Air Enterprises

Allied Air Enterprises announces the new 96G2E 96% AFUE two-stage constant torque gas furnace, for higher efficiency and easy installation. Allied also announces a re-alignment of their single-stage constant torque 95% AFUE furnace models to 96%. The new Allied Air furnace and upgrades for the three brands can help enable customers to qualify for local rebates and incentives when requirements are 96% or higher. The new high-efficiency gas furnace is ENERGY STAR® Certified and features a

self-diagnosing control board for easy operation and servicing. The two-stage gas valve adjusts heat output to optimize comfort and efficiency, while the constant torque blower motor maintains consistent airflow and even temperatures with up to 1/3 less energy than a fixed-speed blower.

For easy installation, the compact 33-inch high unit features left or right side utility connections, removable floor base, rotatable draft inducer and pre-vent, pre-drilled duct flanges as well as up-flow to horizontal conversion with no modifications.



## American Standard

The Platinum 18 heat pump is part of a new lineup of American Standard communicating equipment featuring American Standard Link, an innovative technology to simplify the installation, commissioning, and remote monitoring of variable speed HVAC systems.

Created to provide technicians with a "plug and play" experience, it assists with installation accuracy through automated configuration, charging and system testing; and it works with remote monitoring to provide quicker solutions and more efficient service calls.

Link provides the exact data technicians need for installation and troubleshooting on their own smart device.

These models have dual capability to operate with all





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[www.NATEX.org](http://www.NATEX.org)



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existing AccuLink variable speed indoor equipment and controls, as well as the future American Standard Link air handlers and smart thermostats.

A full line of American Standard Link equipment will be available to our independent dealer nationwide in fall 2022.

## Arcoaire

Featuring a communicating control and efficiency ratings up to 96.7 percent AFUE, the Arcoaire® F96CTN Ion™ 96 furnace is built with stainless steel secondary heat exchangers.

Two-stage heat and variable-speed cooling compatible, this furnace is equipped with a variable-speed, constant airflow ECM blower motor for extra SEER with select cooling equipment and consistent comfort. It is designed for four-way multi-position installation with 12 different vent options and meets 40ng/J low NOx emissions and <2.0% cabinet air leakage per ASHRAE standard 193.

The Arcoaire® F96CTN Ion™ 96 furnace includes a two-speed induced draft combustion blower and variable-speed, constant airflow ECM blower motor to reduce operating sound levels. The blower motor is attached with soft-mount rubber grommets that absorb sound and vibration.

When coupled with a condensing unit and an Ion™ System Control, Arcoaire® Ion™ furnaces can provide advanced dehumidification during cooling operation and can control a humidifier accessory in heating mode. It includes a 24 VAC humidifier terminal and an electronic air cleaner terminal. [www.Arcoaire.com](http://www.Arcoaire.com)



## Bosch Thermotechnology

Bosch Thermotechnology recently introduced the newest addition to its Inverter Ducted Split (IDS) family: IDS Light. This is a game-changing solution for the industry by bringing the consistency and comfort of inverter technology to the industry's first 15-SEER inverter condenser solution. IDS Light delivers the steady energy use and minimal noise expected of an IDS system at a low price point. While conventional heat pumps frequently cycle on and off resulting in temperature fluctuations, the new IDS Light's inverter-driven heat pump self-adjusts for ultimate comfort and consistency. The modulating inverter system delivers only the amount of hot or cool needed to achieve a desired temperature. The high-efficiency variable capacity inverter compressor in the Bosch BOVA15 can adjust to any speed between 33 percent and 110 percent (in 1 percent increments!), to



perfectly cool and heat the home using minimal energy for maximum comfort. [www.boschthermotechnology.us](http://www.boschthermotechnology.us)

## Comfortmaker

The Comfortmaker® CVH8 Ion™ 18 variable speed heat pump with SmartSense™ technology provides five-stage variable-speed technology in a compact design, when installed as part of a complete communicating system including the Ion™ System Control with Wi-Fi® capability. It achieves heating efficiencies up to 11 HSPF and cooling efficiencies up to 19 SEER.

The variable-speed compressor and compact ECM fan motor of the Comfortmaker® CVH8 Ion™ 18 variable speed heat pump with SmartSense™ technology operate at quieter, lower speeds most of the time (as low as 56 decibels). These models offer a soft start and a smooth ramp-up to operating speeds. Cabinets include isolation compressor grommets and a high-performance compressor sound shield for lower noise.

When installed as part of a complete communicating system including the Ion™ system control with Wi-Fi® capability, the Comfortmaker® CVH8 Ion™ 18 heat pump offers more precise system control with remote access, text-based diagnostics, and contractor information displayed. It also has a smaller, lighter design than most two-stage units. [www.Comfortmaker.com](http://www.Comfortmaker.com)



## Day & Night

The Day & Night® G97CMN Ion™ 98 furnace achieves efficiency ratings of up to 98 percent AFUE and features a fully modulating (40-100% capacity) gas valve which allows the furnace to operate on a quieter low-heat setting until the thermostat calls for more heat. It meets 40ng/J low NOx emissions and <2.0% cabinet air leakage per ASHRAE standard 193.

The Day & Night® G97CMN Ion™ 98 furnace has innovative knobs for simple door removal and secure attachment, and slide-out heat exchanger and blower assembly for easy access. When this furnace is connected to a Day & Night® Ion™ System Control, system information is displayed on a touch screen. The system self-configures for improved performance.



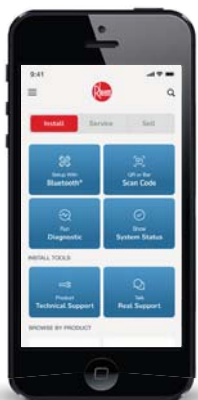
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RheemAir

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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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A variable-speed, constant airflow ECM blower motor and variable-speed inducer motor reduce operating sound levels. Fully insulated steel cabinet absorbs sound from heat exchanger and blower compartments.

The Day & Night® G97CMN Ion™ 98 furnace can provide advanced dehumidification during cooling operation when coupled with a condensing unit and an Ion™ system control. It can also control a humidifier accessory in heating mode. It includes a 24 VAC humidifier terminal and an electronic air cleaner terminal.

[www.DayandNightComfort.com](http://www.DayandNightComfort.com)

## Heil

The Heil® G96CTN Ion™ 96 furnace is built with stainless steel secondary heat exchangers. It features a communicating control and efficiency ratings up to 96.7 percent AFUE.

This furnace is equipped with a variable-speed, constant airflow ECM blower motor for extra SEER with select cooling equipment and consistent comfort. Two-stage heat and variable-speed

cooling compatible, the Heil® G96CTN Ion™ 96 furnace is designed for four-way multi-position installation with 12 different vent options. It meets 40ng/J low NOx emissions and <2.0% cabinet air leakage per ASHRAE standard 193.

The Heil® G96CTN Ion™ 96 furnace reduces operating sound levels with a two-speed induced draft combustion blower and variable-speed, constant airflow ECM blower motor. The blower motor is attached with soft-mount rubber grommets that absorb sound and vibration.

Heil® Ion™ furnaces can provide advanced dehumidification during cooling operation and can control a humidifier accessory in heating mode, when coupled with a condensing unit and an Ion™ System.

[www.Heil-Hvac.com](http://www.Heil-Hvac.com)

## KeepRite

The KeepRite® CVH8 Ion™ 18 variable speed heat pump with SmartSense™ Technology achieves heating efficiencies up to 11 HSPF and cooling efficiencies up to 19 SEER. When installed as part of a complete communicating system including the Ion™ system control with Wi-Fi® capability, the KeepRite® CVH8 Ion™ 18 provides five-stage variable-speed technology in a compact design.

The variable-speed compressor and compact ECM fan motor of the KeepRite® CVH8 Ion™ 18 variable speed heat pump with SmartSense™ technology operate at quieter, lower speeds most of the time (as low as 56 decibels). It offers a soft start and a smooth ramp-up to

operating speeds. Cabinets include isolation compressor grommets and a high-performance compressor sound shield for lower noise. The KeepRite CVH9 Ion 18 offer more precise system control with remote access, text-based diagnostics, and contractor information displayed, when installed as part of a complete communicating system including the Ion system control with WiFi capability. It also has a smaller, lighter design than most two-stage units. [www.KeepRite.com](http://www.KeepRite.com)



## Tempstar

With efficiency ratings up to 98 percent AFUE, the Tempstar® F97CMN Ion™ 98 furnace features a fully modulating (40-100% capacity) gas valve which allows the furnace to operate on a quieter low-heat setting until the thermostat calls for more heat. It meets 40ng/J low NOx emissions and <2.0% cabinet air leakage per ASHRAE standard 193.

When this furnace is connected to a Tempstar® Ion™ system control, system information is displayed on a touch screen. The system self-configures for improved performance. It has innovative knobs for simple door removal and secure attachment, and a slide-out heat exchanger and blower assembly for easy access.

The Tempstar® F97CMN Ion™ 98 furnace can provide advanced dehumidification during cooling operation when coupled with a condensing unit and an Ion™ system control. It can also control a humidifier accessory in heating mode. It includes a 24 VAC humidifier terminal and an electronic air cleaner terminal.

A variable-speed, constant airflow ECM blower motor and variable-speed inducer motor reduce operating sound levels. Fully insulated steel cabinet absorbs sound from heat exchanger and blower compartments.

[www.Tempstar.com](http://www.Tempstar.com)





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## Trane

The new Trane Platinum XV20i Heat pump is part of a new line of equipment featuring Trane Link, a revolutionary communication technology that simplifies installation, commissioning, and remote monitoring of Trane's variable speed systems. Created to provide technicians with a plug and play experience, Trane Link assists with installation accuracy of the XV20i through automated configuration, charging and system testing. Technicians can ensure a speedier setup as Trane Link self-identifies the equipment, provides automatic connection through Bluetooth mesh, and utilizes standardized color-coated wiring.



Through Trane Link, technicians also can experience more efficient service calls and troubleshooting, as the technology provides the exact data they need on their own smart device. The full line of Trane Link equipment will be available to our independent dealers nationwide in Fall 2022. [www.trane.com](http://www.trane.com)

## Bryant

The Preferred™ Series heat pump from Bryant has ratings up to 17 SEER2, 13 EER2 and 8.1 HSPF2. Consumers save money while enjoying smooth, reliable comfort all year long. Bryant's 227T with Puron Refrigerant offers flexible, efficient performance with superior humidity and temperature control that won't deplete the ozone layer. This unit comes with enhanced comfort features, pairs with indoor air quality accessories and is quiet, with sound levels as low as 70dBA. [www.bryant.com](http://www.bryant.com)



## Carrier

Heat pump systems provide versatile heating, cooling, and humidity control – they move heat outside your home in the summer and pull heat into your home in the winter. Carrier's Performance Series 2-stage heat pump with



Puron® refrigerant offers flexible, efficient performance with superior humidity and temperature control that won't deplete the ozone layer. The 25TPA7 has a SEER2 rating up to 17, EER2 rating up to 13, and HSPF2 rating up to 8.1, is energy-efficient, comes with enhanced comfort features, and is quiet with sound levels as low as 70dBA. Performance series heat pumps offer that perfect balance between budget limits and your desire for long-term energy savings.

To learn more about Carrier's heat pump lineup visit [www.carrier.com/residential/en/us/products/heat-pumps/](http://www.carrier.com/residential/en/us/products/heat-pumps/).

## Champion

The Champion® Momentum™ Series TP9C modulating gas furnaces provide more heat for less money, with ENERGY STAR® qualifying efficiency and up to 98% AFUE. The modulating design maximizes comfort by automatically adjusting capacity, heat and airflow, using a variable-speed ECM blower motor that provides quiet, efficient air circulation.

By continuously adjusting heating level in small increments, the modulating burner design, matches the degree of comfort homeowners need, which can cut fuel costs nearly 38% compared to older models.

The furnaces also feature EnviroTrak™ technology, which tailors the systems to homeowners' region for maximum comfort. When paired with the Champion® Momentum™ smart thermostats with Wi-Fi®-enabled touch-screen, homeowners can customize their system for more personalized comfort and maximized efficiency.

Champion® Momentum™ furnaces are designed, engineered and assembled in the United States and backed by a 10-year Complete Assurance™ Warranty Pledge.

The Champion® HMH7 horizontal discharge heat pump (not pictured) provides the ideal solution for spaces that require a compact design, without sacrificing comfort



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or efficiency. It is designed to provide the comfort and technology of a mid-tier efficiency unit at the cost of a base-tier vertical unit, with flexible installation options and innovative features.

Unlike traditional vertical discharge units, the HMM7 heat pump has a 40% smaller footprint, making it a great system for homes in temperate, high-density regions that require a compact design, such as properties with zero lot lines. They can be placed anywhere a vertical unit can, and often in places vertical units cannot fit, thanks to greater clearance and setback flexibility. All HMM7 heat pumps follow standard installation procedures with conventional equipment and devices, using simple kits with relay, wiring and bi-flow filters/dryers. The systems are designed to work with Champion® variable speed or standard ECM indoor air handling equipment, providing many system installation options. In addition, no unique installation procedures are required.

Champion® HMM7 heat pumps reach up to 18 SEER and up to 10.5 HSPF, which can result in lower utility bills compared to older units, saving homeowners money. Inverter system and modulating technology smoothly ramp up operation and continuously adjust, avoiding spikes in energy use while helping to increase overall system longevity and reducing energy usage.

[www.championhomecomfort.com](http://www.championhomecomfort.com)

## Coleman

Coleman® Echelon™ Series TP9C modulating gas furnaces provide more heat for less money, with ENERGY STAR® qualifying efficiency and up to 98% AFUE. The modulating design maximizes comfort by automatically adjusting capacity, heat and airflow, using a variable-speed ECM blower motor that provides quiet, efficient air circulation. By continuously adjusting heating level in small increments, the modulating burner design, matches the degree of comfort homeowners need, which can cut fuel costs nearly 38% compared to older models.

The furnaces also feature EcoTrak™ technology, which tailors the systems to homeowners' region for maximum comfort. When paired with the Coleman® Echelon™ smart thermostats with Wi-Fi®-enabled touch-screen, homeowners can customize their system for more personalized comfort and maximized efficiency.

The Coleman® HMM7 horizontal discharge heat pump (not pictured) provides the ideal solution for spaces that require a compact design, without sacrificing comfort or efficiency. It is designed to provide the comfort and technology of a mid-tier efficiency unit at the cost of a base-tier vertical unit, with flexible installation options and innovative features.

Unlike traditional vertical discharge units, the HMM7 heat pump has a 40% smaller footprint, making it a great

system for homes in temperate, high-density regions that require a compact design, such as properties with zero lot lines. They can be placed anywhere a vertical unit can, and often in places vertical units cannot fit, thanks to greater clearance and setback flexibility. All HMM7 heat pumps follow standard installation procedures with conventional equipment and devices, using simple kits with relay, wiring and bi-flow filters/dryers. The systems are designed to work with Coleman® variable speed or standard ECM indoor air handling equipment, providing many system installation options. In addition, no unique installation procedures are required.

Coleman® HMM7 heat pumps reach up to 18 SEER and up to 10.5 HSPF, which can result in lower utility bills compared to older units, saving homeowners money. Inverter system and modulating technology smoothly ramp up operation and continuously adjust, avoiding spikes in energy use while helping to increase overall system longevity and reducing energy usage.

Another key advantage to the horizontal discharge system is an innovative fan design that creates less vibration and provides quieter operation. Sound output is as low as a typical dishwasher at 54 dBA, which is 36% lower sound levels than standard heat pump units.

It comes standard with a 10-year Compressor Limited Warranty and a 10-year Parts Limited Warranty with product registration, and extended warranties are available. [www.colemanac.com](http://www.colemanac.com)

## Luxaire

Luxaire® Acclimate™ Series LP9C modulating gas furnaces provide more heat for less money, with ENERGY STAR® qualifying efficiency and up to 98% AFUE. The modulating design maximizes comfort by automatically adjusting capacity, heat and airflow, using a variable-speed ECM blower motor that provides quiet, efficient air circulation. By continuously adjusting heating level in small increments, the modulating burner design, matches the degree of comfort homeowners need, which can cut fuel costs nearly 38% compared to older models.

The furnaces also feature GeoTrak™ technology, which tailors the systems to homeowners' region for maximum comfort. When paired with the Luxaire® Acclimate™ smart thermostats with Wi-Fi®-enabled touch-screen, homeowners can customize their system for more personalized comfort and maximized efficiency.

Luxaire® Acclimate™ furnaces are designed, engineered and assembled in the United States and backed by a 10-year Complete Assurance™ Warranty Pledge.

The Luxaire® HMM7 horizontal discharge heat pump (not pictured) provides the ideal solution for spaces that require a compact design, without



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Unlike traditional vertical discharge units, the HMM7 heat pump has a 40% smaller footprint, making it a great system for homes in temperate, high-density regions that require a compact design, such as properties with zero lot lines. They can be placed anywhere a vertical unit can, and often in places vertical units cannot fit, thanks to greater clearance and setback flexibility. All HMM7 heat pumps follow standard installation procedures with conventional equipment and devices, using simple kits with relay, wiring and bi-flow filters/dryers. The systems are designed to work with Luxaire® variable speed or standard ECM indoor air handling equipment, providing many system installation options. In addition, no unique installation procedures are required.

Luxaire® HMM7 heat pumps reach up to 18 SEER and up to 10.5 HSPF, which can result in lower utility bills compared to older units, saving homeowners money. Inverter system and modulating technology smoothly ramp up operation and continuously adjust, avoiding spikes in energy use while helping to increase overall system longevity and reducing energy usage.

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[www.luxaire.com](http://www.luxaire.com)

## YORK

YORK® Affinity™ Series TP9C modulating gas furnaces provide more heat for less money, with ENERGY STAR® qualifying efficiency and up to 98% AFUE. The modulating design maximizes comfort by automatically adjusting capacity, heat and airflow, using a variable-speed ECM blower motor that provides quiet, efficient air circulation. By continuously adjusting heating level in small increments, the modulating burner design, matches the degree of comfort homeowners need, which can cut fuel costs nearly 38% compared to older models.

The furnaces also feature ClimaTrak™ technology, which tailors the systems to homeowners' region for maximum comfort. When paired with the YORK® Affinity™ smart thermostats with Wi-Fi®-enabled touchscreen, homeowners can customize their system for more personalized comfort and maximized efficiency.

The YORK® HMM7 horizontal discharge heat pump (not pictured) provides the ideal solution for spaces that



require a compact design, without sacrificing comfort or efficiency. It is designed to provide the comfort and technology of a mid-tier efficiency unit at the cost of a base-tier vertical unit, with flexible installation options and innovative features.

Unlike traditional vertical discharge units, the HMM7 heat pump has a 40% smaller footprint, making it a great system for homes in temperate, high-density regions that require a compact design, such as properties with zero lot lines. They can be placed anywhere a vertical unit can, and often in places vertical units cannot fit, thanks to greater clearance and setback flexibility. All HMM7 heat pumps follow standard installation procedures with conventional equipment and devices, using simple kits with relay, wiring and bi-flow filters/dryers. The systems are designed to work with YORK® variable speed or standard ECM indoor air handling equipment, providing many system installation options. In addition, no unique installation procedures are required.

YORK® HMM7 heat pumps reach up to 18 SEER and up to 10.5 HSPF, which can result in lower utility bills compared to older units, saving homeowners money. Inverter system and modulating technology smoothly ramp up operation and continuously adjust, avoiding spikes in energy use while helping to increase overall system longevity and reducing energy usage.

Another key advantage to the horizontal discharge system is an innovative fan design that creates less vibration and provides quieter operation. Sound output is as low as a typical dishwasher at 54 dBA, which is 36% lower sound levels than standard heat pump units.

[www.york.com](http://www.york.com)

## Daikin

Delivering outstanding efficiencies, Daikin ATMOSPHERA is North America's first home comfort product featuring R-32, a refrigerant with one-third the Global Warming Potential of USA's and Canada's most used refrigerants.

A single-zone, ductless system, the new Daikin ATMOSPHERA features impressive ratings up to 13.8 HSPF, 16.3 EER and 27.4 SEER for ultra-efficient heating and cooling. Daikin ATMOSPHERA provides up to 100% rated heating capacity at 5°F WB and confirmed continuous operation as low as -13°F WB, with up to 100% rated cooling capacity at 115°F DB.

New hybrid cooling technology efficiently controls humidity, even in low-cooling loads, maintaining dehumidification effect after reaching target temperatures. A novel "CLEAN" operation dries the indoor unit's interior, reducing condensation; a detachable drain pan provides easy cleaning. Indoor units include built-in WiFi for control via the Daikin Comfort Control app. Four sizes are available from 9,000-24,000 BTU.

A pure, single-component refrigerant, R-32 is easy to top off, clean and reuse on-site, or reclaim and recycle.

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Recognized by EnergyStar® As a “Most Efficient 2021” system, Daikin DZ20VC heat pumps deliver outstanding year-round indoor comfort, with up to 10 HSPF heating and 21 SEER cooling performance.

The DZ20VC employs Daikin’s proprietary inverter technology with high-efficiency variable-speed swing and scroll compressors. Daikin Inside Intelligence constantly monitors performance for trouble spots.

A high-efficiency ECM indoor condenser fan motor with advanced fan design moves air quickly and quietly. Features include refrigeration-grade 7mm copper tubing and aluminum fin condenser coil; coil and ambient temperature sensors; diagnostic indicator lights, seven-segment LED display, and fault code storage; field-selectable boost mode; factory-installed muffler and crankcase heater; acoustically engineered, high-density sound control blanket; and a heavy-gauge galvanized steel cabinet with sound-control top.

[www.NorthAmerica-Daikin.com](http://www.NorthAmerica-Daikin.com)

## Goodman

The Goodman® brand GVZC20 heat pump capitalizes on inverter technology to drive up to 10 HSPF heating and 21 SEER cooling performance.

Goodman’s inverter-driven systems provide tremendous efficiencies, helping reduce compressor wear and tear. They run at more energy-conserving speeds, reach indoor comfort settings more quickly, balance heat load through continuous dehumidification, and operate at lower sound levels, avoiding the constant on/off cycling compared to single- and two-stage systems.

The GVZC20 is ComfortBridge™ communicating technology compatible, allowing for easy commissioning and diagnostics using the CoolCloud™ phone/tablet application.

Contractor-friendly features include Goodman control algorithmic logic; diagnostic indicator lights,

seven-segment display with fault code storage; coil/ambient temperature sensors; sweat connection service valves; easy gauge port access and more.

The GVZC20 is available in 2- to 5-ton units, with 23,400-52,000 BTU/h heating capacities.

Like all Goodman brand indoor comfort products, the GVZC20 heat pump is designed, engineered and assembled in the USA. [www.goodmanmfg.com](http://www.goodmanmfg.com)

## Amana

Engineered with forward-thinking technology and built to uncompromising standards, Amana® brand AVZC20 inverter-driven heat pumps provide up to 21 SEER and 10 HSPF performance.

Compatible with off-the-wall ComfortBridge™ Technology, the AVZC20 features high-performing Comfort Speed inverter

technology designed for consistent indoor comfort and quiet, variable-speed, energy-saving operation. Using the CoolCloud™ mobile app via Bluetooth, technicians can quickly commission, configure, diagnose the system.

Outstanding heat transfer properties are delivered using a seven-millimeter, refrigeration-grade premium copper tubing and aluminum-fin condenser coil configuration. The AVZC20 was recognized as a “Most Efficient” unit by ENERGY STAR®.

Contractor-friendly features include Amana brand control algorithmic logic; sweat connection service valves with easy access to gauge ports; top/side maintenance access; single-panel access to controls.

Available in 2- to 5-ton units with heating capacities of 22,800 - 52,500 BTU/h, and covered by a Lifetime Unit Replacement Limited Warranty and 10-Year Parts Limited Warranty. Designed, engineered and assembled in the USA. [www.amana-hac.com](http://www.amana-hac.com)

## Nortek Global HVAC

Nortek Global HVAC has introduced the award-winning Ultra-Low NOx (ULN) Single Packaged Gas/Electric Series heating/cooling system marketed under the Maytag®, Frigidaire®, Gibson® and Broan® brands. The feature-rich



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ULN series' six rooftop models all use the same size inventory-saving roof curb (horizontal or downflow discharge) and range from 2- to 5-tons and 55,000 to 100,000-BTU heating capacities.

The ULN packaged units boast NOx ratings ranging from 7 to 10-nanograms per joule (ng/j) and comply with Southern California's nation-leading 14-ng/j standard without sacrificing performance. The series' NOx emissions are 65% less than standard furnaces. The low NOx ratings are accomplished with a unique air intake/burner assembly, which utilizes a 3M Company-developed mesh fabric originally designed for NASA's space shuttles to withstand 3,000°F temperatures without oxidizing.

The printed circuit board design enables factory pre-programming for minimizing NOx emissions, while also eliminating additional parts and time-intensive contractor jobsite calibration. The PCB and quick-connect refrigerant service ports are designed for easy service accessibility. Factory-installed liquid line filter driers also expedite contractor installation.

The ULN series' standard state-of-the-art components include electronically-commutated (EC) motors and Copeland scroll compressors. Both indoor and outdoor all-aluminum, lightweight coils optimize heat transfer, and minimize size and cost while increasing durability and reliability.

The galvanized steel cabinet features a polyurethane finish with a 950-hour salt spray corrosion resistance. An epoxy-coated wire guard and a mesh guard protect against hail, lawnmowers and projectiles.

[www.nortekhvac.com](http://www.nortekhvac.com)

## Rheem

Built with contractors and installers in mind, the Rheem® Endeavor™ Line Classic Plus® Series R962V is an ENERGY STAR® certified furnace featuring 96% AFUE, resulting in energy efficiency savings. With quieter operation top-of-mind, insulated cabinets and truly variable speed airflow technology make these units one of the quieter furnaces available. Additionally, with the latest in sensor technology, the EcoNet® monitoring system provides a new level of protection, control and energy savings. The unit also boasts PlusOne® Diagnostics with built-in Bluetooth connectivity and Rheem Contractor app compatibility, which are all specifically designed to streamline installation and simplify service.

[www.nortekhvac.com](http://www.nortekhvac.com)

## Mitsubishi

The Intelli-HEAT™ Dual Fuel System provides cost-effective, efficient and environmentally friendly heating and air conditioning all year long. Dual-fuel systems enable homeowners with gas furnaces to reduce their fossil fuel dependency and enjoy the benefits of



all-electric, high-performance heat pumps. This technology is a bridge between old and new technologies, similar to hybrid cars.

Intelli-HEAT's versatile design optimizes variable-speed technology and smart controls, resulting in lowered utility bills, reduced GHG emissions of up to 40% and a quieter outdoor environment while providing the perfect comfort level.

[www.mitsubishi.com](http://www.mitsubishi.com)

## Oxbox

Oxbox offers a large portfolio of gas furnaces ranging from 80% AFUE to 96% AFUE. All are 100% factory tested and have a lowboy design that is only 34.5" tall to help in tight installations. To conduct heat quickly and increase durability, Oxbox furnaces are made with aluminized steel heat exchangers and have silicon nitride igniters. Additionally, the furnaces are fully convertible to either natural gas or propane, making them suitable for use in any area. Oxbox models are built for flexibility to suit varied installations.

Oxbox heat pumps are available in 14 to 16 SEER models; DOE 2023 compliant models will be released in the fourth quarter of 2022 with 14.3 to 15.2 SEER2 ratings. The Oxbox heat pump units feature painted and galvanized steel cabinets that resist rust and stand up to the toughest weather conditions. [www.oxboxhvac.com](http://www.oxboxhvac.com)

## GE Appliances

The Connect Series from GE Appliances, a Haier company, has the flexibility to allow application with a 24-volt conventional ducted air handler. Various sound-dampening features, in both indoor and outdoor sections, maintain operational sound levels as low as 47dB. The air handler ships as an up-flow or horizontal left configuration. This unit is compatible with the AUH2436ZGDA outdoor unit and offers a Seasonal Energy Efficiency Ratio (SEER) of 18.

[www.geappliancesairandwater.com](http://www.geappliancesairandwater.com)



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# BEYOND BIM—

## Leveraging the Model for Estimating, Procurement, and Fabrication

by David Derocher



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Over the past two decades, the adoption of building information modeling (BIM) has steadily grown and become a more common industry practice. Traditionally utilized in the design and modeling phases of a project, BIM has provided benefits such as improved coordination with other trades, better planning, and more accurate and efficient layout in the field.

Now the industry is embarking on the next phase in the growth and adoption of BIM, a phase in which the model is utilized beyond just the design and layout of a building. However, for this new approach to be successful, all project data must be accessible, accurate and actionable by the right people at the right time. Oftentimes, MEP contractors are unable to share or access up-to-date data, leaving gaps in information and coordination that make it difficult to carry out MEP construction effectively.

Using a constructible process in which data is shared and updated in real-time with all stakeholders optimizes the entire design, build, and operate lifecycle. Contractors can further extend the value of their models by connecting them during the estimating, procurement and fabrication processes for better project insight and visibility, improved collaboration, and more accurate project execution.

### Model-based Workflows

The value of digital collaboration, in real-time and across teams, can be found in impactful workflows that ensure every person, phase and process works together seamlessly. It all starts with high-quality content—having the right information, at the right time, in the right format. And not just any content; content that is complete and up-to-date with attributes such as labor and pricing values, dimensions, parametric data, and more—because the last thing you want to do is make decisions using bad data. When powered by a common content source, the model can be leveraged by multiple people all working from the same data set.

Understanding the role of shared managed content between the model and the estimating, procurement, and fabrication phases of a project can lead to improved collaboration and increased profits. Just-in-time project estimates, change orders, bill of materials, spool assembly instructions, project status, and more can easily be generated and accessed. All it takes is the click of a button to send that information to the necessary stakeholders and software.

### Estimating

By connecting the model to the estimating software, the estimate can be

continually updated with pricing and product information directly from manufacturers and suppliers as the project progresses. With this tool at their disposal, contractors can be sure that the items and prices they're including in today's job estimates and restrips are as up-to-date as possible.

Using BIM models for estimating does not replace the 2D model, but rather, it ties the 3D model back to the estimate to help with execution and visibility. Although the initial bid price on a project is typically fixed, contractors can use model-based estimating to track their projects against the original bid estimate throughout the life of the project.

This visibility and insight helps contractors make adjustments while executing the project to ensure that the project comes in on time and on budget. Model-based estimating is also a valuable tool in communicating and quantifying project change orders. Over time, the ability to compare a model-based estimate against the original conceptual estimate helps estimators to improve future bid accuracy. **CB**

**David Derocher** is the portfolio manager for Trimble MEP's North American VDC Products. For more information, visit: [mep.trimble.com](http://mep.trimble.com).





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# Investing Options for Business Owners

There are four easy ways for business owners to re-invest their hard-earned money in tax-deferred investments.

by James Griner

**T**he biggest question I get as an accountant is, “How can I pay less in taxes?” While there are many options, many of those options result in spending more money. While nothing is wrong with that, the point of a business is to grow and invest in your future, even if your starting goal is to bring in money to help pay your current bills. So, if we are trying to invest in your future, spending more money isn’t the best route as a long-term solution, so how else can we save on taxes? Quite simply, we change how your money is invested.

All a business is, is a type of investment. Like any other investment, moving funds or changing how funds are invested helps us to maximize our returns. You can also benefit by limiting your taxable income. Luckily, as a business owner, you have four easy ways to re-invest your hard-earned money in tax-deferred investments. Each type has its monetary limitations along with regulatory limitations, all of which are outlined for you below. One important thing to note is that most of these options are tax-deferred, not tax-free. These tax-deferred options result in a deduction of your taxable income that year and thus reduce the taxes owed for the year. However, in the future, you will pay taxes on that money as you withdraw it from the investments.

## Traditional IRA

The most common type of tax-deferred investment is a Traditional IRA. These allow you to set aside up to \$6,000, \$7,000 for those over 50, per year as tax-deferred income. So ultimately, a married couple could set aside up to \$14,000 into

an IRA and have a reduction in their income by that same number. However, you cannot withdraw this money until you reach age 59 $\frac{1}{2}$ ; without a penalty being assessed of 10% of your withdrawal. Now understand there are several ways to avoid this penalty. However, when investing in a traditional IRA, you will likely leave the money in the IRA until you reach retirement age. Furthermore, remember that you want to invest in a Traditional IRA, not a ROTH IRA, as a ROTH is not tax deferred.

## SEP IRA

If setting aside only \$6000 is not enough for you, you may want to consider opening up a SEP IRA. SEP IRAs are explicitly designed for small business owners and self-employed individuals. They allow up to \$61,000 to be invested in an account similar to a Traditional IRA, meaning it is all tax-deferred. However, while this number may seem enticing, it is limited by your compensation. You will only be able to set aside 25% of your income, which means you would have to make \$244,000 to set aside the entire amount. The downside to a SEP IRA is that they are designed to be offered to all employees. As such, you will need to work with a financial advisor and accountant to ensure yours is appropriately set up to comply with regulations. Furthermore, this option is designed to be a cheaper alternative to offering 401K plans. Still, while a 401K plan can be borrowed against, SEP IRAs are not as easy to borrow against if you need to get to funds penalty free.

*Continued on page 48*

# KEYNOTES

**TIM TEBOW**

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## NASRC Launches Refrigerant Transition Hub

MILL VALLEY, California — Information related to the phasedown of hydrofluorocarbon (HFC) refrigerants continues to be provided to industry professionals. The North American Sustainable Refrigeration Council (NASRC)—a 501(c)(3) a free refrigerant transition hub to help retailers navigate regulation changes implemented by the American Innovation and Manufacturing (AIM) Act. Enacted in 2020, the AIM Act authorizes the Environmental Protection Agency (EPA) to phase down hydrofluorocarbon (HFC) refrigerant greenhouse gas emissions by 85 percent by 2036.



“HFC regulations from the AIM Act and several states are pressuring retailers to transition to climate-friendly refrigerants,” said Danielle Wright, executive director of NASRC. “Retailers need neutral information to help them make the right decisions. NASRC works in partnership with the supermarket industry, so we are uniquely positioned to identify the gaps in available resources.”

The federal phasedown of HFCs is expected to result in refrigerant shortages and significant price increases. In Europe, refrigerant prices increased by 900% following a similar HFC phasedown. Also, new legislation introduced in states such as California proposed to ban the sale and distribution of virgin HFC refrigerants as early as 2025, further driving the need for natural refrigerant solutions. Visit the hub at <https://nasrc.org/hub>.

## Chemours to Expand Texas Production

WILMINGTON, Del.—The Chemours Company announced on July 27 it will be expanding its Chemours Opteon™ YF (HFO-1234yf) capacity produced in Ingleside, Tex., to help meet customer needs as they continue transitioning to lower GWP refrigerants. The Opteon™ YF and YF blends refrigerants are now used in millions of vehicles and thousands of retail



The Chemours Company

stores around the world, with zero ozone depletion potential (ODP) and global warming potential (GWP) that is significantly lower than the legacy refrigerants.

Chemours considers the \$80 million capacity expansion project a critical growth investment that supports market demands and aligns with Chemours corporate responsibility targets, delivering high returns and delivering on its purpose. When Chemours opened the facility in June 2019, it more than tripled the company’s capacity of Opteon™ YF, making it one of the world’s largest HFO-1234yf production facilities, a distinction it will retain with this project. This investment, along with on-going de-bottlenecking projects, will further increase site capacity by approximately 40 percent.

The refrigerants manufactured by Chemours in Ingleside—which is 20 minutes outside of Corpus Christi—will be delivered to what Chemours says is a rapidly growing base of customers around the world. In the mobile air conditioning market, the number of vehicles on U.S. roads using HFO-1234yf is estimated to be at least 80 million. Since the opening of the production facility, several equipment manufacturing companies have also selected Opteon products for residential and commercial HVAC applications. By 2025, Chemours estimates that its low-GWP product line will eliminate an estimated 325 million tons of carbon dioxide equivalent globally.

## One Refrigerant, Many Applications

Chemours Opteon™ XP40 (R-499A) is one of the most significant solutions for today’s HVACR industry. Approved by major equipment and component manufacturers—and in use in thousands of systems worldwide—Opteon™ XP40 continues to gain momentum as a leading alternative for R-22, R-404A/R507, and R-407 series refrigerants in commercial refrigeration applications. By combining improved product performance with zero ozone-depletion potential (ODP) and low global warming potential (GWP), Opteon™ XP40 is a sustainable alternative to support your customers as the industry progresses through the phasedown outlined in the American Innovation and Manufacturing (AIM) Act. Classified by AHSRAE as an A1 refrigerant (nonflammable), Opteon™ XP40 is suitable for new equipment as well as retrofits for existing installed systems, especially for supermarket systems, condensing units, cold storage systems, and self-contained applications. Opteon™ XP40 is available from major distributors across the U.S. and Canada. [chemours.com](http://chemours.com)



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## Introduction to Superheat and Subcooling Diagnostics

How to use superheat and subcooling measurements to diagnose what's happening inside the refrigeration circuit.

by David Richardson

In the last Contracting Business *HotMail* article on Fundamentals of HVAC Superheat and Subcooling, we discussed these readings and how to measure them. In this article, we'll look at how you can use these invaluable measurements to diagnose what's happening inside the refrigeration circuit. Let's look at the four most common superheat and subcooling combinations and what they can show you.

### Know Your Targets

Before you can diagnose superheat and subcooling, you need target ranges. Equipment manufacturers provide this information in the installation instructions, equipment data plates, and charging calculators. In the absence of this information, use the ranges below from the previous article as a guide.

It's important to remember that superheat and subcooling reveal the refrigerant's state at the measurement location. If they're within manufacturer specifications, that's a good sign. However, if outside those parameters, there's an issue that needs further investigation.

Beware of using superheat or subcooling as standalone measurements. For a clearer picture of what's happening, I encourage you to use them together (Photo 1). You can "see" the refrigerant state in both the evaporator and condenser. I misdiagnosed a lot of systems when I tried to shortcut and look at only one of these measurements based on the type of metering device.



Photo 1: Measure superheat and subcooling together to "see" the refrigerant state in the evaporator and condenser.  
NCI

### High Superheat and Low Subcooling

High superheat and low subcooling are probably the most common combination you will encounter. They reveal a system low on refrigerant charge.

The first clue of an undercharge often comes from low refrigerant pressures. But remember, pressure only shows one aspect of system operation. You still need to convert pressures to saturation temperatures. Once you combine saturation temperatures from your manifold with your refrigerant line temperatures, that's when the diagnosis becomes clearer.

In high superheat and low subcooling conditions, the high superheat tells you there isn't enough refrigerant in the evaporator. Low subcooling tells you there isn't enough liquid refrigerant in the condenser.

When you find this condition, your first reaction might be to charge up the system. Don't do this. Before you grab a refrigerant tank, first find the leak in the system. Refrigerant doesn't disappear.

Whenever I did a "gas-n-go" to get the customer cooling again, 90% of the time, I was back within a week on another no-cooling call. In my haste to get to the next call, I unintentionally cheated and disappointed those customers. Some were forgiving. Others lost their faith in me. It's much easier to do the job right the first time.

### High Superheat and High Subcooling

This combination is a perfect example of why you can't use manifold pressures alone to troubleshoot a refrigeration problem. They will fool you every time and result in a misdiagnosis.

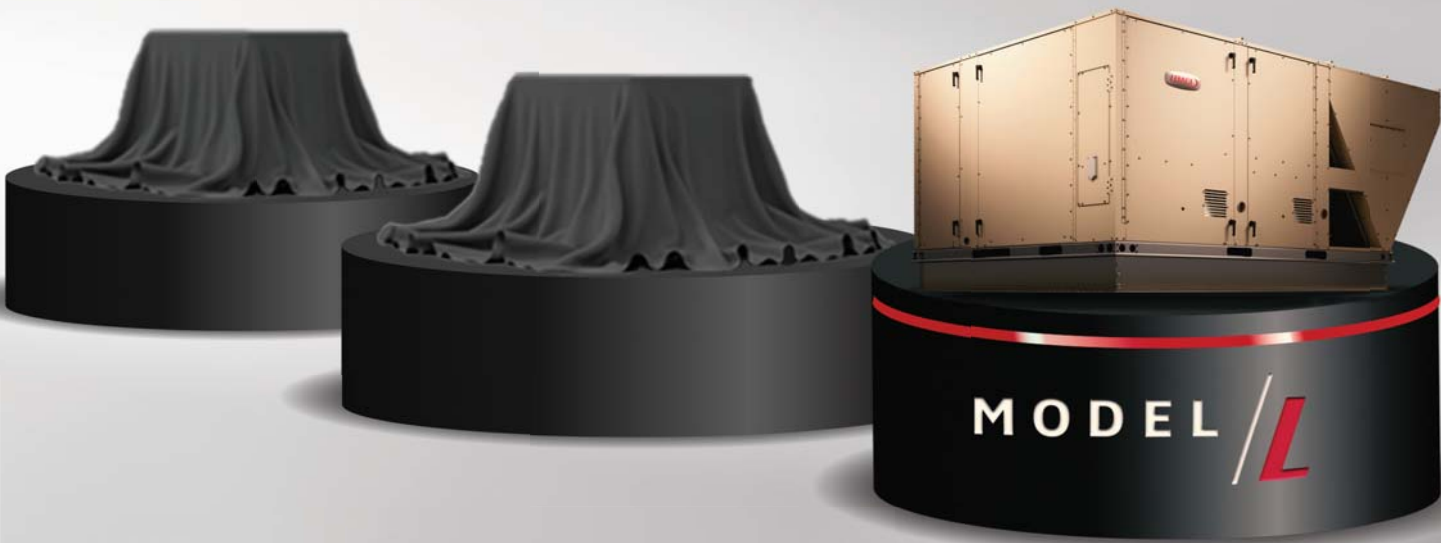
A system running high superheat and subcooling has a high-side restriction somewhere. The issue could be a liquid line restriction, a TXV (Thermostatic Expansion Valve) sensing bulb with no charge, a restricted metering device, or plugged filter drier.

If you were to look at manifold pressures only, you would likely notice low refrigerant pressures, just like a system that's low on charge. However, that's not the problem. Many technicians (myself included) have added refrigerant to systems that didn't need it. We stopped troubleshooting once we had our pressures and failed to look at superheat and subcooling.

Just as with an undercharge, high superheat means an evaporator starved for refrigerant. However, an undercharge isn't the problem. The high subcooling tells you there is plenty of liquid in the condenser. The high side restriction causes

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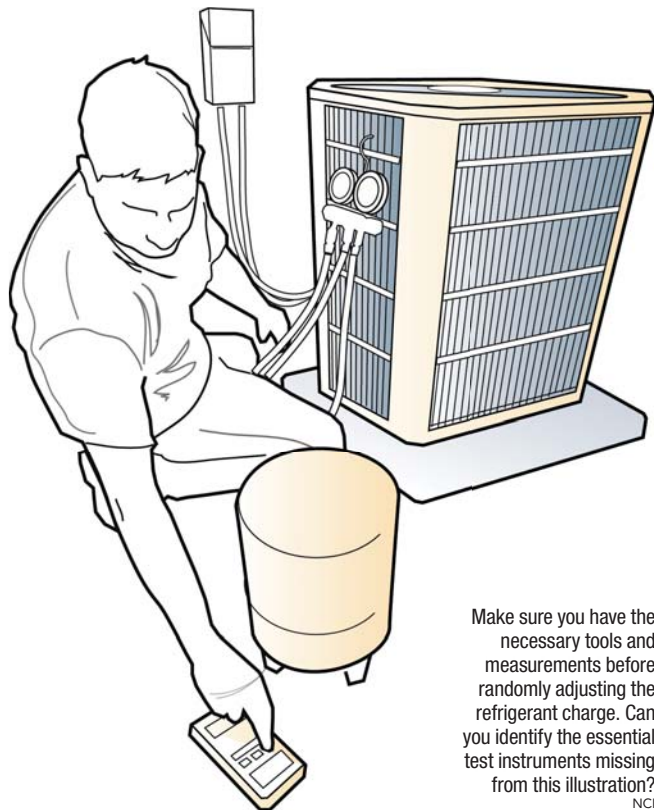
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Make sure you have the necessary tools and measurements before randomly adjusting the refrigerant charge. Can you identify the essential test instruments missing from this illustration?  
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liquid refrigerant to back up in the condenser and not make it to the evaporator.

High-side restrictions can be tricky to diagnose depending on their location and the equipment type. On some equipment, the subcooling may appear close to normal because there's plenty of room in the condenser to hold liquid refrigerant that's backing up. The key to solving the puzzle lies in the superheat reading. If it is high with normal subcooling, there's a good chance you have a restriction.

Before you condemn a TXV, visually inspect the liquid line and components first. If the restriction is severe enough, you might notice frosting at the point of restriction. You can also measure temperature drop across the suspected location. Any temperature change is reason enough for further investigation.

## Low Superheat and High Subcooling

The third combination often reveals itself with higher-than-normal refrigerant pressures. If you pay attention to the suction line, it's sweating and cold to the touch. The liquid line might even be hot, and the compressor is probably louder than it should be.

Once you measure refrigerant line temperatures and compare them to saturation, you'll find the answers. The suction line temperature will be near or at saturation, while the liquid line temperature will be much higher than the saturated liquid temperature. A system with low superheat and high subcooling has too much refrigerant.

The two previous conditions we looked at had high superheat. Low superheat shows too much refrigerant in the evaporator, and it cannot boil it off fast enough. The excess refrigerant could easily make it back to the compressor and cause permanent damage from flood back and, in severe cases, slugging.

High subcooling tells you there is too much liquid in the condenser. With a high side restriction, the liquid is backing up because of the obstruction. However, with an overcharge, there is simply too much refrigerant in the system.

Two common maintenance issues that result in overcharging are:

1. Checking the charge in low load conditions in cooler, spring conditions.
2. Trying to check the charge on a condenser coil that's still wet from cleaning.

Both conditions can fool you into thinking the system needs refrigerant.

If you find an overcharged system, slowly remove the excess refrigerant with a recovery tank and digital charging scale. Be sure you track how much charge you removed from the system.

## Low Superheat and Low Subcooling

This last condition can leave you scratching your head. The evaporating pressure (low side) is higher, while the condensing pressure (high side) is lower. However, once you measure refrigerant line temperatures, you'll discover low superheat and low subcooling.

These conditions usually signal a metering device feeding too much refrigerant into the evaporator. If the system uses a TXV, it is overfeeding or stuck open. If there is a piston to meter the refrigerant, it is likely oversized.

Like an overcharge condition, low superheat means too much liquid refrigerant in the evaporator and not enough vapor. Remember, the primary purpose of a metering device is to "meter" liquid refrigerant into the evaporator.

A properly sized and functioning metering device should flash the liquid refrigerant into a partially gaseous state as it passes through the opening. When a TXV or piston overfeeds, the liquid doesn't change to a lower-pressure vapor but remains very close to a high-pressure liquid.

When a metering device overfeeds, there is little back pressure to keep liquid refrigerant in the condenser. As a result, you will see lower condensing pressures and subcooling.

Unless you have an adjustable TXV, there is no simple solution to an overfeeding metering device. You'll have to access the refrigerant side of the system and either replace a bad TXV or change the piston to the correct size. Be sure to follow proper evacuation procedures and measure vacuum with a micron gauge.

## When Your Readings Don't Add Up

Sometimes your readings won't match manufacturer troubleshooting charts and basic guidelines in this article. What do



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Value	Formula	Target Range	Tolerance
Superheat: Fixed Orifice	Suction Line Temperature – Saturation Temperature	$(EWB^* \times 3 - 80 - ODB^{**}) \div 2$	+/- 5°
Superheat: TXV	Suction Line Temperature – Saturation Temperature	Evaporator: 8° – 12°	+/- 5°
Subcooling	Saturation Temperature – Liquid Line Temperature	10° – 15°	+/- 3°

\* EWB = Entering Wet Bulb

\*\* ODB = Outdoor Dry Bulb

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overcharged system will pull more amps than an undercharged system.

One of the most frustrating situations to encounter is when the TXV hunts. The superheat and subcooling fluctuate as the valve opens and closes, starving and flooding the evaporator. This reaction is often a result of poor airflow across the evaporator.

Airflow is the missing ingredient in refrigerant testing. Ideally, it should be the first measurement you gather before grabbing a refrigerant manifold. Otherwise, you're making a big assumption that affects the entire system. **CB**

you do then? The most important step is to keep your cool and don't panic. When you freak out, you guess.

Keep the situation in context. Residential systems do screwy things when you have 90°F air moving across the evaporator. If turning on a system after it's been down and it's 90 degrees inside and out, allow the indoor conditions to stabilize before adjusting the charge. Also, don't forget to allow for refrigerant line length and condenser refrigerant capacity. Both will influence your readings.

Another valuable reading is to measure compressor amps and compare them to the compressor's rated load amps. You can find this information on the equipment or compressor data plate. The amp draw indicates how much work the compressor is doing. A compressor pumping refrigerant on an

**David Richardson** serves the HVAC industry as National Comfort Institute, Inc. (NCI) director of training. NCI specializes in training that focuses on improving, measuring, and verifying HVAC and Building Performance.

If you're an HVAC contractor or technician interested in learning more about refrigerant-side performance, contact David at [ncilink.com/ContactMe](http://ncilink.com/ContactMe) or call 800-633-7058. NCI's website [www.nationalcomfortinstitute.com](http://www.nationalcomfortinstitute.com) is full of free technical articles and downloads to help you improve your professionalism and strengthen your company.

## BUSINESS MANAGEMENT

Continued from page 40

### 401K Plans

Likely the most widely known way to invest is through an employer-sponsored 401K plan. While a 401K has a higher limit than a Traditional IRA, \$20,500 (\$27,000 if you are over 50), it is still lower than a SEP IRA. However, like SEP and Traditional IRAs, early withdrawal before turning 59½ can result in a 10% tax penalty. So how is a 401K better, you may ask? Unlike every other option, you can borrow against the principle of a 401K account, providing working capital today with no penalties if you need to grow your business. Unfortunately, 401Ks have management fees and tend to result in higher costs to the company than any other option, which can be a deterrent as they are highly regulated. Furthermore, a 401K plan must be equal for all employees, so any matching would occur for all eligible employees. One caveat is when profit sharing exists, allowing profits to be shared based on several factors.

### Business Start-ups, Real Estate

The final way, and likely the way to defer the most income, is not through traditional means of investing but instead investing in new business opportunities or real estate. Both

options will likely have start-up costs and potentially several years of losses as that business gets off the ground. These costs and losses will help offset the profit you are bringing in through your current company and thus reduce taxable income. Unlike traditional methods, though, this is a short-term solution most times and will likely result in more profits in three to five years. Investing in real estate is another more long-term solution. The costs of interest and depreciation can be written off, potentially resulting in losses for the entirety of the ownership of the property. Unfortunately, these are the most complicated options for investing and require constant discussions with an accountant to properly maximize your savings and carry the highest amount of risk.

There are many ways to invest; these are only a few examples. Investing can be pivotal in helping to reduce tax liability but also in preparing you for retirement. As soon as you can start investing, you should. Due to compounding interest, the sooner the money is invested, the sooner you see returns. **CB**

**James Griner** is owner of Waterford Business Solutions, Greenville, SC, providers of accounting services for contracting businesses. [www.waterfordbusinessolutions.com](http://www.waterfordbusinessolutions.com); 864-351-0852.

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BY CHARLIE GREER

## Loyalty Programs that Work



**A loyalty program must provide long-term benefits.**

Loyalty programs are tricky. If your experience with loyalty programs has been anything like mine, there have been occasions where the loyalty program was such a pain that it actually deterred me from using a retailer I'd been using before they came up with their loyalty program.

It's difficult to get a loyalty program going in HVAC. People aren't going to suddenly get motivated to buy some Indoor Air Quality products, a new system, or book a service call just because you're running a special.

Onetime promotions do not, as a rule, generate loyalty.

My experience has been that running a special on replacement equipment only works when you advertise it and people who are already getting estimates see your ad and call you.

A special on replacement equipment is helpful when you're presenting someone without a major urgent need a repair vs. replace option. If they honestly believe that they'll have to replace within a short period of time, and there's a savings by replacing now, it may push them over the edge. The same thing with IAQ. If they're replacing their equipment, and there's a financial incentive to add IAQ, they might go ahead and do it, but none of that will generate long-term loyalty.

A loyalty program must provide long-term benefits for the consumer.

Here are some of the programs I've used to generate loyalty from existing customers and, in some cases, even generate new customers:

### The 'Family' Service Agreement

We're talking about your standard-issue Maintenance Agreement that includes annual routine maintenance and service at a discount, as well as priority service, but no free repairs.

The "family" service agreement is three times the price of a normal single-family service agreement, and can include all the households of a family that is located within your market area. You can put a limit as to the number of households that can be included if you so desire.

Some contractors reading this will say that if a customer has five or six families living in the area they don't want to go to all those extra homes and

do maintenance on them for free. That's short-sighted. You don't do maintenance to get the discounted money for the service agreement. You do the maintenance to get into the home and inspect equipment that probably has not been kept maintained, that probably needs a lot of work, and some of which will need replacing.

One of the most successful contractors I know will cover every system in a home (the average number of systems in a home in his area is 2.4) for a total \$79 per house. I can assure you that I have seen first-hand how this has worked for him for at least the last 12 years.

Obviously, this only works if you've got service technicians that have had sales training.

### Free Smart thermostats

One of the first HVAC contractors in the USA to buy whole-heartedly into smart home technology includes a smart thermostat in every replacement job at no additional charge.

His salespeople carry a smart thermostat with them and show it to customers, along with the app, during every presentation. The app shows what other devices in the home can be automated, and this contractor can take care of those as well.

His salespeople have told me that, not only does this result in a higher closing ratio and higher average sale, it changes the entire conversation. When people have been getting bids, they've already heard about all the usual things HVAC salespeople talk about. His salespeople are the only people with that great visual aid and something different and interesting to talk about.

The smart thermostat connects directly with his shop and it alerts them when there's an issue. This keeps the contractor connected to the customer 25/7 for as long as they own that thermostat. This is almost the ultimate in loyalty programs.

### Lifetime Warranty on Repairs

Consider giving customers a lifetime warranty on any repair you do (consumables, such as capacitors and capacitors can be excluded) for as long as they maintain their service agreement.

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Equipment that has been properly maintained doesn't break down very often, but every time their unit does, they'll call you in the hopes that it will be a free service call.

Sure, you'll eat a service call and a part now and then, but you're almost guaranteed to keep that customer for as long as they own that equipment. When they need a new one, you'll be the first one there.

### Lifetime Leak Search

Customers don't realize how difficult it can be and the liability involved in doing a proper leak search, and frequently complain about the cost of it.

You know that as soon as you repair the leak, the pressure in the system is going to go after the next weakest spot in the system and there will be another leak in the very near future.

Make sure you let them know that they get a lifetime warranty on the leak

search, so if it stops working properly, to call you. They'll still pay your service call fee and for any repairs, but the leak check itself will be free.

From that point forward, every time their air conditioner isn't cooling properly, they'll call you hoping that it's low on refrigerant and that you'll check it for free.

### Refunds on Service Agreements

I had printed prices on replacement equipment that I could show to people. These prices were 20% higher than what I needed to make our desired profit and were, consequently, 20% more than I expected to get for the job. This allowed me to offer discounts for a variety of reasons.

Something I ran into on a semi-regular basis was maintenance agreement customers complaining that, after all the money they spent of maintenance over the years, that their equipment should

never have broken down in the first place and should last forever.

On a \$10,000 replacement, I could take a whopping \$2,000 off my book price and still make the profit I wanted. That means that if they'd spent \$200 per year over the last 10 years on a maintenance agreement with my company, I could credit every dime of it back toward the purchase of a new system, in the form of a loyalty discount, and still make my desired profit.

I turned many an irate customer into a loyal fan inside of one minute with this strategy. **CB**

**CHARLIE GREER** is the creator of "Slacker's Guide to HVAC Sales on Audio CD" and "Tec Daddy's Service Technician Survival School on DVD." For information on Charlie's schedule and products, call 1-800-963-HVAC (4822) or go to [www.hvacprofitboosters.com](http://www.hvacprofitboosters.com). Email your feedback and sales questions to [charlie@charliegreer.com](mailto:charlie@charliegreer.com).

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BY MATT MICHEL

# Implications of an IRS in 'Beast Mode'

An August 2 editorial in the *Wall Street Journal* called attention to one of the more pernicious elements of the "Inflation Reduction Act," that being the bill's unprecedented funding for the Internal Revenue Service. "The IRS Is About to Go Beast Mode," proclaimed the headline. It will likely affect many small businesses, including contractors.

The bill includes nearly \$80 billion additional funds for the IRS spread over a nine-year period. Given the agency's current budget is \$12.6 billion, this is quite the increase. More than half (\$45.6 billion) is dedicated to enforcement. Arguments over whether this will result in 87,000 more agents as conservatives claim and the left disputes are irrelevant. "The American Families Plan Tax Compliance Agenda" published by the U.S. Treasury department notes that under the plan "each year the IRS's workforce should grow by no more than a manageable 15%."

The IRS currently has 78,661 full time equivalent employees. Increasing that workforce 15% a year, compounded over a decade, results in a lot more than 87,000 new hires. This absolutely will mean a significant increase in agents and audits.

## Who Will See Increased Scrutiny?

In Treasury department document, insight is given into how the increased funding will be used. The report notes that there is not much opportunity among taxpayers whose income is subject to withholding, documented with W-2s. However, entities who receive "opaque" sources of income are another story. The government believes their compliance is limited. In the report's own words:

*Today, business income is subject to limited information reporting. Current reporting of gross receipts exists for only certain types of revenue, and there is no information reporting on deductible expenses. This is why the tax gap for partnership, S-corporation, and proprietorship income is estimated at around \$200 billion annually with the net misreporting percentage for certain income categories exceeding 50%.—The American Families Plan Tax Compliance Agenda, Page 20*

Who will see increased scrutiny? According to the Treasury department, if you own a small business, you will. What can you do about it? Here are four recommendations.

## Use an Outside CPA

The key word for the IRS is "opaque." Think of them as your nosy neighbor. They hate it when they don't know everything. The use of a CPA may not make the opaque transparent, but it does offer third party, trusted verification.

IRS agents prefer to deal with a CPA over a business owner. IRS agents and CPAs speak the same language. The IRS even gives them special access numbers so they can get answers to questions while the number you call reaches a human being less than 10% of the time, according to the Treasury Inspector General.

A CPA is a good go-between for your business and the IRS. Dealing with the taxman is a distraction. It takes your eye off the ball. This is the biggest cost to a business and it's invisible. Don't pay it. Pay a CPA.

If you are using a bookkeeper, switch to a CPA or have a CPA review everything the bookkeeper does. Definitely use

the CPA for all tax filings. Even if you, personally are a CPA, use an outside CPA. It is less opaque.



**A CPA is a good go-between for your business and the IRS.**

## Establish a Relationship With a Tax Attorney

If we indeed get a "beast mode" IRS focusing on small businesses, sooner or later you will need a tax attorney. Your CPA should be able to help you find one. Ask. If not, start the search yourself. At least meet with one to establish a relationship so you have a person to call when necessary.

## Clean Up Your Act

When you own a small business, it is tempting to pay some personal expenses through the business. It is common for many contractors' spouses to drive vehicles owned by the company. Your Board of Directors might consist of family members, making dinner out a business expense. Or, your Board meets every year in the Caymans. The company may even own a house in the Caymans.

Stop it. Paying these expenses with pre-tax money is not worth the risk. If it is a gray area, avoid it. You will sleep better at night.

The opposite of opaque is transparent. Transparency for the IRS means providing as much third-party reporting as possible and as much documentation as possible. Documentation is not a strength of most contractors. Delegate to someone who is good at it.

Do all you can to make your business as transparent as possible if the IRS decides to give you a fiscal proctology exam. Document everything. Pay your CPA to help get your record keeping audit proof. **CB**

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### ADDITIONAL INFORMATION

Before purchasing this appliance, read important information about its estimated annual energy consumption, yearly operating cost, or energy efficiency rating that is available from your retailer.

**R32**

Up to 27.4 SEER  
Up to 13.8 HSPF  
Up to 16.3 EER

