



Evaporative Cooling Advancements Open Up New Sales Opportunities

Sales and product guidance for expanding HVACR contractors

BY ANGELA D. HARRIS
THE NEWS STAFF

The market for non-refrigerant-based systems is expanding as evaporative cooling solutions edge closer to center stage. What began conceptually as a swamp cooler has advanced to a role played far beyond the Southwestern U.S., where it originally gained popularity.

“Evaporative cooling — direct, indirect, and two-stage solutions — are being used across the board in a wide variety of commercial and industrial solutions,” said Randy Niederer, director of marketing, Cambridge Engineering. “It is currently experiencing a renaissance, as large manufacturing and distribution facilities are choosing this technology to provide cooling relief for employees.”

This renaissance, along with several new technology factors, creates a backdrop for contractors to benefit from the sale of evaporative cooling solutions.

EVAPORATIVE SALES GUIDANCE

Effectively selling evaporative cooling solutions to customers begins with

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EXPANDING TECHNOLOGY: “Evaporative cooling is the preferred method of cooling whenever reduced footprint and/or reduced energy consumption are of the greatest importance,” said Adam Radford, global product manager, Closed Circuit Coolers, Evapco. “The technology is suited for all areas of the United States, depending on the application and site requirements.”

FYI

HVACR BRIEFS

MANUFACTURERS

Resideo Technologies Inc.

(Austin, Texas) acquired **LifeWhere** (Pittsburgh).

Harris Products Group (Mason, Ohio) named **Brian Henderson** national sales manager — wholesale.

Navien Inc. (Irvine, California) was recognized as the leader in the wall-hung solo boiler market category, according to the 2018 summary report by **BRG Enterprise Solutions Inc.** (London).

Taco Comfort Solutions (Cranston, Rhode Island) recognized **Darron Desroches** as the 2018 Regional Manager of the Year for Taco's North American sales team representing the Southeast sales market in the residential wholesale channel.

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The IoT Fights Against the Labor Shortage

BY MARIA TAYLOR
THE NEWS STAFF

High-tech tools and equipment can help contractors do more work with less manpower, and that can help contractors combat the labor shortage. At least, that's what manufacturers assert, as more and more smart, connected, Wi-Fi-enabled

technology is incorporated into the tools of the HVAC trade.

As with any transformation, there's a ripple effect. One change — remote consultations, for example — can spark changes that affect everyone in the company, from the techs in the field to the customer service representative (CSR) answering the phone calls or the web

chats or the text messages. And those changes, while they'll likely pay off in the long run, can mean more work in the short run as contractors get up to speed with new IoT equipment and new processes surrounding it.

“I think it's actually not a reduction in labor; it's a transfer of the skill set that's needed,” said Chris Hunter, founder of

Hunter Super Techs in Oklahoma and North Texas and business success coach with Go Time Success Group. “I feel like you still need the same number of people. But it can cut down on the amount of time one's there, for sure. It's kind of like the auto industry, where they could take the carburetor apart and clean it ...

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could get it going,” he added. “Now, with so many sensors and specialized boards, it’s a different ballgame.”

Then, there can be problems that are really more Wi-Fi related — yet in order to satisfy the customer, addressing them suddenly becomes part of an HVAC technician’s job description.

Hunter recounted an issue where a customer bought his most expensive system, with all the bells and whistles.

“You’d have more issues due to nuisance things like sensors, or the Wi-Fi won’t connect,” he said.

That’s where things get a little problematic, said Kohberger.

“Some of that issue is with a totally separate field,” he said. “You have to know how to log into a router for reports ... It had nothing to do with this industry until very recently. Really, the only solution at this point, unless you have a totally separate training program, is telling the customer, ‘Hey, this seems like a problem with your router; you’re going to have to call an IT person to deal with this.’ Which is not a satisfactory thing to say to clients who just paid \$10,000 to you and don’t have a working system with all the features that they paid for.”

As a general rule, technology in the HVAC industry tends to lag little behind other fields and is still in its early stages, said Kohberger, whose colleagues call him “The Blue Collar Nerd.” He’d like to see more ability to not only monitor remotely, but control remotely as well.

“There’s a lot of potential that I really haven’t seen any company unlock yet,” he said.

For example, one manufacturer had an exclusivity deal with a different contractor in his area. If anything went wrong with a system where that contractor had installed a monitoring system, that contractor would get an

alert and be able to jump on the opportunity. However, Kohberger’s company wouldn’t be able to work with that system at all, because the other contractor was the only one allowed to use it.

“I see a lot of potential with stuff like that,” Kohberger said. “I also see a lot of danger: What incentivizes manufacturers to stay loyal to contractors? What stops them from saying, ‘Hey, direct client, your capacitor is out. This is rated, on a scale of difficult to easy, as beginner level. And here’s how to do it. Here’s a video that we’ve made. And here’s our link where you can buy a capacitor straight from us.’

What stops that?”

Hunter summed up an HVAC contractor’s thoughts on the burgeoning IoT scene.

“Is it a labor saver? Yes. Is it a time saver? Yes. Does it also come with headaches? It does,” he said. “But I think it all starts with the leadership fostering a sense of, ‘Hey, we’ve got to embrace this.’ And we’re going to have to train for it. We’re going to have to make sure we equip our team with all the tools in order to be successful ... because it’s here, and it’s going to stay. So we might as well learn how to get out in front of it. Instead of fighting it, make it work for us.” ■

HVACR TECHNOLOGY

EVAPORATIVE

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understanding the different ways to accomplish evaporative cooling. Direct evaporative cooling is the traditional technology of which most contractors and technicians have a knowledge. According to “Evaporative Cooling 101” on Evapco’s website, “Direct evaporative cooling systems put the process fluid, typically water, into direct contact with air. Water flows through fill as a fan draws air across it, facilitating the transfer of heat from the warm water to the cooler air. This is the system used in open-air cooling towers.”

Indirect evaporative cooling is much the same as direct in concept; however, instead of coming in direct contact with the water, the air is pumped through coils, and water flows across the coils.

Two-stage solutions, a combination of both indirect evaporative cooling and direct evaporative cooling technologies, use a plate heat exchanger with the indirect section’s airstream, which then passes through the direct evaporative media for additional cooling, according to Niederer.

“Direct evaporative cooling works well in dry arid climates, whereas indirect evaporative cooling works well in a much broader geographic area,” he said. “Two-stage evaporative



WORKER SAFETY: Contractors can use the current regulatory environment and laws to highlight the need for worker health and safety to potential customers.

cooling is being used in many situations, and evaporative cooling is also being used to efficiently prechill intake air being used in refrigerant-based cooling applications.”

He explained that there are tradeoffs between evaporative cooling and DX or VRF that should be communicated to the customer.

“Contractors must determine what their end user is trying to achieve with their IAQ and then design that solution with either in-house engineers or with an MEP [mechanical, electrical,

plumbing] engineering firm,” said Niederer. “If the end user just wants to set a thermostat at 70°F and be assured that the temperature never gets warmer, then evaporative cooling may not meet their requirements. End users that want to condition their space to be more user-friendly than the outside air, yet perhaps not as cool as a residential setting, will find that evaporative cooling can often meet their needs.”

He gave the example of conditioning a distribution center in Dallas and compared the cost of purchasing and

operating a refrigerant-based system for this application versus an evaporative cooling system solution.

“In this application, the cost for refrigerant-based cooling could be exorbitant,” said Niederer. “Yet direct evaporative cooling can provide a delta T drop of 20° for a fraction of the purchase and operating cost.”

TECHNOLOGY EXPANDS REACH

With an understanding of what evaporative cooling is and how to better communicate

with customers about the topic, contractors will next need to ascertain which solutions will work and where to find the right customers.

“Although awareness and technical understanding of the latest technologies is increasing, I feel the role evaporative cooling and the undoubted impact it can make is completely undervalued by the HVAC industry as a whole,” said Mike Sullivan, CEO of Air₂O. “With the phase out of HCFCs and, now, HFCs with a high GWP, it is only natural that the industry will have to start to seriously consider where possible R-718 — water.”

Sullivan noted that when using evaporative cooling as the primary cooling measure, regions with low wet bulb often yield the best results. Dependent on the application, however, evaporative cooling technologies can have benefits to all regions.

Niederer suggests that HVAC contractors look for customers in industrial manufacturing, warehouse/distribution, higher education, prisons, and utilities for ideal evaporative cooling customers. Other applications mentioned included data centers, confinement farming, hospitals, and indoor sporting facilities.

“Evaporative cooling is the preferred method of cooling whenever reduced footprint and/or reduced energy consumption are of the greatest importance,”

HVACR TECHNOLOGY



DIVERSE APPLICATIONS: A push for energy and financial savings continues to drive innovation in the evaporative cooling market. Manufacturers are taking different avenues to improve the technology for further diverse applications like the Ikea store pictured here.

said Adam Radford, global product manager, Closed Circuit Coolers, Evapco. “The technology is suited for all areas of the United States, depending on the application and site requirements.”

Identifying a good evaporative cooling application customer is not based solely on location and humidity.

According to Scott Jacobs, director, Engineering, Portacool LLC, there are many tell-tale signs that contractors can identify.

“Look for the current use of subpar attempts of cooling, like barrel fans,” said Jacobs. “Even in hot and humid areas, evaporative cooling can provide some cooling relief when used properly. Evaporative cooling popularity has surged in high-heat areas where people, equipment, and animals need relief.”

He explained that contractors can use the current regulatory environment and laws to highlight the need for worker health and safety to potential customers.

“Even though using evaporative cooling in enclosed buildings becomes much more difficult in humid climates, savvy users can supplement an evaporative system with proper ventilation in order to maintain a comfortable environment,” said Jacobs.

EVAPORATIVE COOLING FUTURE

A push for energy and financial savings continues to drive innovation in the evaporative cooling market. Manufacturers take different avenues to improve

the technology for further diverse applications.

For example, according to Evapco, both internal tube enhancement and extended surface fin technology have significantly increased the efficiency of the current technology in the evaporative cooling market.

“From data centers located in a dry, desert environment looking to save on water and footprint to large commercial HVAC

buildings in Seattle looking to go ‘green’ with the provision of environmentally sustainable cooling solutions, hybrid coolers are really where the present and future of the industry is headed,” said Radford.

Portacool has found that by manipulating different factors in its manufacturing process, the company can get different results.

“This has resulted in a more efficient product and has allowed evaporative cooling to become a



EVAPORATIVE ELEMENTS: Some evaporative cooling methods include media, like Kuul® evaporative media seen here.


legitimate option in many more parts of the world,” said Jacobs.

Cambridge Engineering expects to achieve even more energy efficiency from evaporative cooling units via more efficient fan technologies and variable frequency drives in the future.

“We also foresee adding ERV [energy recovery ventilation] technology to the units and finding ways to reduce water consumption and improve the

quality of the water used,” said Niederer.

Air₂O is aware of many concepts to improve efficiency and performance, especially at the times of high wet bulb.

“We are working on a few ourselves,” said Sullivan. “In the meantime, great advancements have been made in evaporative cooling technology in recent years, and it is now a viable — and, in many cases, superior — form of cooling for many projects.” 

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