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What's Next for Hydrocarbons?

EPA SNAP Approval of HCs Draws Mixed Reaction

By Ron Rajecki
Of *The NEWS* Staff

In March, the U.S. Environmental Protection Agency (EPA), through its Significant New Alternatives Policy (SNAP) program, approved several low-GWP (global warming potential) hydrocarbon (HC) refrigerants for use in refrigeration and air conditioning

applications, subject to use conditions. The approval — which had been expected for some time — drew a mixture of reactions ranging from support to concern.

Tom Morris, director of business development, Honeywell Fluorine Products, said Honeywell is supportive of the EPA's efforts to work with industry and other stakeholders to allow the introduction of lower-GWP refriger-

ants including those that are designated flammable. But, "although the EPA's recent SNAP approval is a step forward for flammable HC refrigerants, there are other hurdles for these products including building codes that would need to be modified," he said.

Morris added Honeywell has developed and introduced a wide range of low- and reduced-

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Zoning Embraces Role in the Connected Home

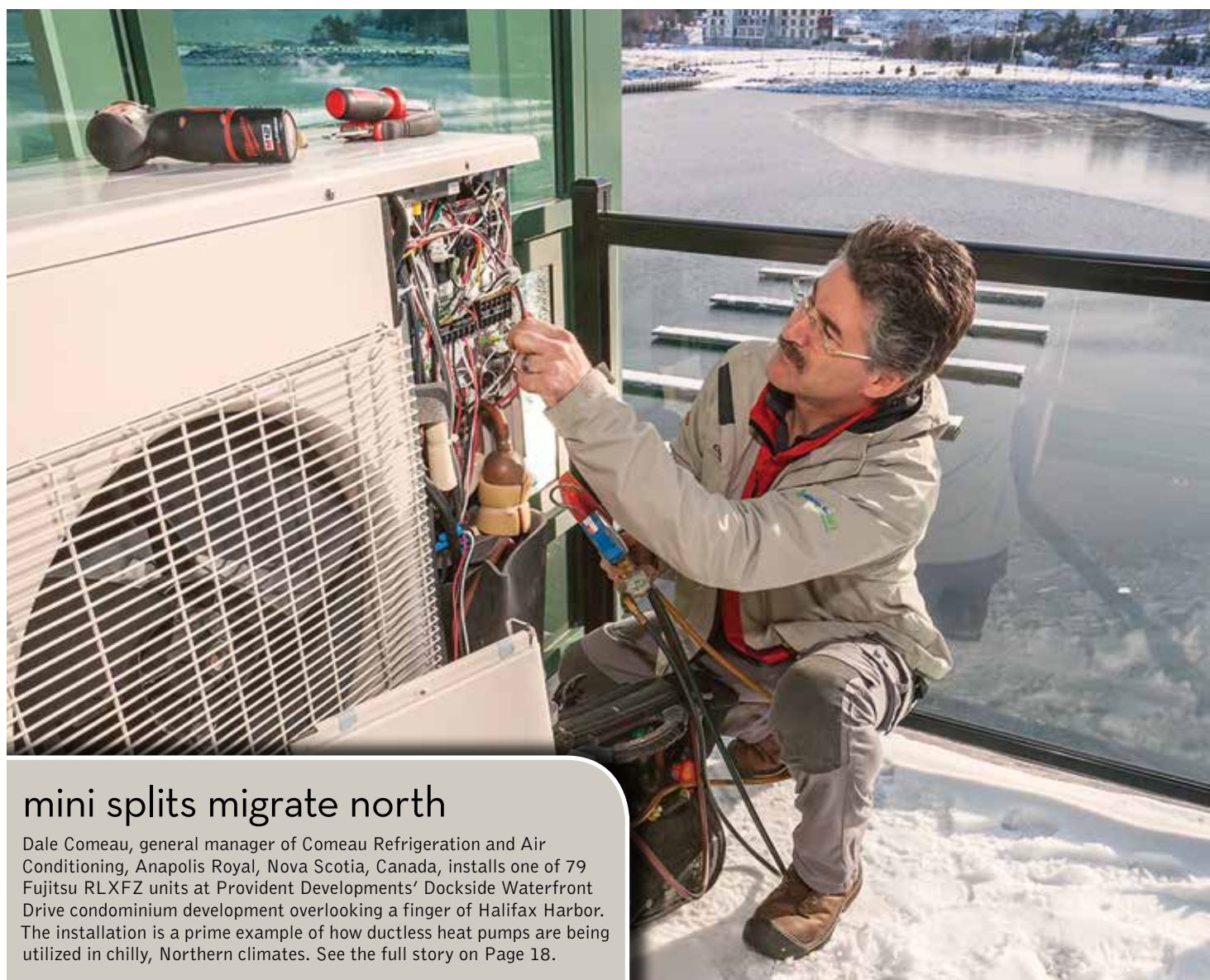
Consumers Covet Wi-Fi Controls, A La Carte Comfort

By Nick Kostora
Of *The NEWS* Staff

While other aspects of the HVAC industry may have scattered focuses and are chasing a number of emerging trends, zoning knows exactly where it is headed, and that is toward the connected home. The AHR Expo in February highlighted this trend as manufacturers both big and small showcased products that could be connected to one another over a single wireless network. Thermostats and controls are at the forefront of the connected home charge, and homeowners or facility managers may now control the climates within individual rooms from a million miles away, courtesy of their mobile devices.

"There is a significant transition going on from non-connected controls to connected controls," said Karl Mutchnik, product manager for connected home solutions, Trane. "That's why we have both Wi-Fi and Z-Wave offerings. Wi-Fi is clearly gaining a lot of steam throughout the industry, and, I'd imagine, in the next five to 10 years, virtually anything that people can buy will have Wi-Fi controls."

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mini splits migrate north

Dale Comeau, general manager of Comeau Refrigeration and Air Conditioning, Anapolis Royal, Nova Scotia, Canada, installs one of 79 Fujitsu RLXFZ units at Provident Developments' Dockside Waterfront Drive condominium development overlooking a finger of Halifax Harbor. The installation is a prime example of how ductless heat pumps are being utilized in chilly, Northern climates. See the full story on Page 18.

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Mini Splits a Legit Fit in Maritime Climate

Canadian Contractor Boasts Success Installing Ductless Heat Pumps in the North

Canada's Maritime provinces saw a considerable surge in condominium construction between 2010 and 2012. New luxury units were going up in every town that boasted a view of the water. While residential growth in New Brunswick, Nova Scotia, Canada, and Prince Edward Island, has since slowed to a degree, the condo boom brought some changes to the small provinces. Heating professionals noticed a trend.

Freeze, Thaw, Repeat

High-end, multifamily structures — whether vacation rentals or primary residences — are a relatively new element to the housing market in most of the Maritime region. In an area dotted by 150-year-old Victorian homes, modern condos stand out architecturally.

With condos came a few new climate-based challenges to property owners, developers, and HVAC professionals.

Individual energy metering became a consideration with new, multi-family dwellings, especially considering that many of the spaces are often unoccupied for months at a time. While this may be true with any multiunit buildings, the northern coast's dramatic freeze-and-thaw cycles, coupled with year-round high humidity, become an obstacle for air-to-air heat pump technology, which are often high on the list of comfort solutions in condos.

"Keeping condensing units defrosted is the biggest issue here," said Dale Comeau, general manager of Comeau Refrigeration and Air Conditioning, a five-person company based in Annapolis Royal, on Nova Scotia's northwestern coast. The firm's main focus is ductless heating and cooling systems, but it also installs ducted and geothermal equipment and offers commercial refrigeration sales and service.

In the maritime climate, high outdoor humidity exists even below freezing temperatures. Condensing units can quickly become covered with frost, restricting airflow and reducing net heat output.

"I've actually had homeowners ask me how often they should expect to defrost their new units," he continued. "Their concern is based on past experiences or horror stories they've heard. So, they're a bit skeptical when I tell them they shouldn't ever have to defrost it manually."

Comeau Refrigeration has a local reputation for making ductless systems work, despite the weather.



Provident Developments' Dockside Waterfront Drive features 78 luxury condos in two towers in Bedford, Nova Scotia, Canada.



Dale Comeau (left), general manager, Comeau Refrigeration and Air Conditioning, Annapolis Royal, Nova Scotia, Canada, and Jeff Shearer (right), HVACR apprentice, carry in the necessary resources.

The company's accountability ultimately helped land one of the largest single mini-split jobs they've completed to date.

Dockside Ductless

In 2011, Provident Developments found Comeau Refrigeration on Fujitsu's "find a contractor" webpage. After checking the company's reputation locally, Provident called to explore the possibility of a system for Dockside Waterfront Drive, a recent project in Bedford. Three meetings and one proposal later, plans were set to install multi-zone, high-efficiency ductless heat pumps at the property.

Two towers — 5 and 6 stories tall — include a total of 78 luxury condos overlooking a finger of Halifax Harbor. They offer quiet waterside living just 20 minutes from downtown Dartmouth and Halifax. Comeau's individual heat pump design trumped Provident's



Shearer installs the indoor coil unit on one of 79 Fujitsu RLXFZ units.



The project includes a total of 79 Fujitsu RLXFZ units for the condo units and one common area.

initial approach, which was based on a large variable refrigerant flow (VRF) system. “Individual metering was probably the biggest consideration for this project,” said David Hilchey, vice president, Provident. “Both the VRF approach and individual unit approach provided that capability. Ultimately, the mini splits provided a more cost-effective solution.”

By the end of the project, a total of 79 Fujitsu RLXFZ units were used for the condo units and one common area. Depending on the floor plans, which range 1,100-2,150 square feet, dual-, tri-, and quad-zone systems were installed for maximum flexibility, comfort, and efficiency.

Inside, wall-mounted evaporators and slim duct evaporators were used. Greentek heat recovery ventilator (HRV) systems were tied into the slim duct units to eliminate redundancy and reduce costs. Comeau collaborated with a sheet metal subcontractor to complete the ventilation system. Provident began selling condos in mid-2013.

Frost-free

To keep units free from frost in Maritime Canada, every detail must be considered during instal-

are each located on decks outside the living space they condition, so disposing of defrost condensate was a challenge. To prevent units from freezing, base pan heaters are installed under each condenser, and condensate lines are piped through the building envelope and terminated in the storm water plumbing.

Old Towns, Old Systems

Single-family residences in Nova Scotia present the same climate-related challenges as condos, but with the added task of maintaining historic integrity.

“Most of Nova Scotia is an architectural museum in its own right,” said Comeau. “We’re constantly playing ‘hide the condenser’ to keep homeowners and historic societies happy. But we do this well because we’re picky by nature.

“In single-family homes, we’re typically installing ductless sys-

tems that’ll hold their own at true design conditions, which is 0°F, or minus 18°C,” said Comeau.

“If there’s a backup system, we can shave down the capacity a little,” he added. “Environmental Canada says the Maritime average design is 32°F, but, even with backup heat, we never design for less than 14°F.”

“Technology has evolved, and we know how to handle the climate challenges here, but we’re still dealing with clients adapting to the new systems,” said Comeau. As was the case at Docksider, as many homeowners need help getting over the learning curve that can result from exposure to a completely new technology.

Many of the homes in Nova Scotia use wood as the primary source of heat. Because of this, occupants are accustomed to indoor temps of 80°-85°F through the winter months. They make the switch to a ductless system so they

don’t have to cut, split, and stack wood all summer, but are surprised at how much they spend on electric throughout the winter to keep the home at the same temperature.

“Other than wood, it doesn’t matter what fuel source you’re heating with, it’s going to cost you a lot to keep an old house that hot all winter,” said Comeau. “After just one winter, they usually come to love the consistent temperature and hands-free heat. And, they sure do like air conditioning in the summer.”

Information courtesy of Dan Vastyan, an account manager and writer for Common Ground, on behalf of Fujitsu General America Inc. Vastyan writes about HVAC, hydronic, plumbing, mechanical, radiant heat, geothermal, solar, and broad building systems industries. For more information, call 717-664-0535 or email cground2@ptd.net.

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