

# Plumbing & HVAC

PRODUCT NEWS

Volume 17 Number 3

May/June 2007

## 13-SEER — one year later

**Spring  
Air Conditioning  
Issue**

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- Quebec show expands
- Feds launch energy savings rebate program
- Low sulfur fuel blamed for oil pump woes
- Making sense of combustion analysis



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This air handler is cleverly disguised.  
Don't get fooled, page 18



This integrated boiler control can reduce  
energy costs.  
Go green on page 24



This unit allows technicians to "configure  
on the fly."  
Imagine that, page 27



Quick release system makes this seat  
easy to clean.  
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# Spring Air Conditioning

## Case Study

# Ductless solution

Mini-split system brings new comfort to B.C. home

By John Vastyan

Barrie and Jaqie Coxe own a two-story, 2,400 square foot, three-bedroom home in Kaleden, B.C. Three years ago they bought the 16-year-old house. But the family's discomfort settled in as they experienced the approach of their first winter in the home.

"Some parts of the home were too warm. Other spaces were too cold. And the cost of attempting to heat the house added a whole new level to our discomfort," said Jaqie. They quickly discovered that the home's electric resistance heaters were burning the bank account. A gas stove in the living area provided ample heat for that part of the home, but it too was inefficient.

In the dog days of summer, their discomfort took another turn. "Window shaker" air conditioners left parts of the home uncomfortably warm and humid. Family members seemed to catch colds at the oddest time. They eventually traced this to the constant movement from warm areas to chilled spaces where the a/c units rattled away.

### Looking for help

"So we set out to find the best way to heat and cool our home more comfortably and efficiently," said Barrie. But the Coxes quickly became discouraged. The best estimate for a central system was \$16,000. In addition, they'd need \$900 for an electronic air cleaner, plus over \$5,000 to repair ceilings and walls where the ducts would run.

"We asked repeatedly about ductless systems because we found a wealth of information about them in articles we read, or on websites," added Barrie. "But, initially, all of the contractors discouraged this, pushing for a central air solution."

Two years after they bought the home, they met Jim Damberger who owns Penticton, B.C.-based Tri-City Heating and Air Conditioning, and Kathy McKenzie, Tri-City's salesperson, at a local home show. Tri-City is a full-service heating and air conditioning firm that does new installation and service work, focusing on residential

and light commercial ductless systems. Jim and Kathy visited the Coxe home for an evaluation. Jim, a mechanical engineer by training, explained that he had installed hundreds of ductless systems in Ontario before setting up shop in Penticton two years ago.

"New inverter systems (with variable speed compressors) are a big leap forward in ductless technology," said Damberger. Several systems had already been successfully installed by Tri-City in the Okanagan area.

Damberger specified a Fujitsu Halcyon system consisting of one multi-zone condensing unit and three 12,000 BTU indoor air handlers, placed in strategic positions within the home.

The system uses R410A refrigerant and offers efficiency ratings of up to 15 SEER for cooling and 9.0 HSPF in the heat pump mode. Other standard features include wireless remote control, plasma filter, sleep timer, 24-hour timer, dry mode, auto louver and auto mode with automatic restart/reset and efficient operation with low or high ambient temperatures.

"These models also have a dry mode to prevent mold and bacteria growth by reversing the cycle of refrigerant to dry out condensation in the indoor coil without changing room temperature," explained McKenzie. "And during the dry-coil mode, the plasma filter operates to help disinfect the coil. This feature is helpful in businesses where a system is shut off for the weekend or a vacation home that may be shut down for the season."

In the area where the Coxes live, sum-



Installation manager Kurt Lehmann checks the operation of the condensing unit. (David Szabo photo)

mers reach 100°F (38C) and winter temperatures can dip to about 0°F (-17C). "The ductless system supplies all of the heat for the Coxe family until exterior temperatures reach 14°F (-10C), or below," added McKenzie. "At that point, supplemental heat is provided by the existing baseboard electric resistance heaters. Cooling is easily handled by the system."

### Quick installation

The installation took two technicians two days. Kurt Lehmann, and his helper, Nelson Vokey, placed one air handler in the basement at the end of a long hallway. The hallway then acts as a plenum to the various rooms in the basement. This system does the bulk of the heating for the whole house by warming the air, which then gently rises along the stairway as it moves to the home's first floor. Refrigerant lines were run through a closet to the outdoor unit.

They also placed an air handler in the large central living area upstairs where the family spends most of its time. Here, too: line sets were run through a closet (the unit backs onto this closet),

then down into the laundry area and under a deck to the outdoor unit.

The third air handler was hung in the master bedroom with copper lines running unseen directly through the wall to the outdoor unit. The condensing unit is located in the backyard up against the home and behind the master bedroom.

"Initially, we had some concern about where the line sets would run outside the home, and how they'd look, but that dissolved quickly once we saw how well Tri-City installed them for us," reported Jaqie.

"The cost of the system was a good investment, and we were rewarded not only with a much more comfortable home, but with much lower energy bills too," added Barrie.

"We are currently installing 5 or 6 mini-split systems a month, and the feedback from homeowners has been remarkable," said Damberger. "Our largest residential installation so far is a 4,700 square foot bungalow. With the recent addition of a second salesperson, we're rapidly expanding our market."

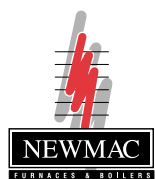
John Vastyan is a freelance writer based in Manheim, Pennsylvania.



Technician Nelson Vokey installs an air handler.

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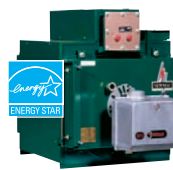
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