

This Old House With A Twist: **Pre-Fab Construction and Advanced Daikin Technology**

The Challenge

Homeowners featured in the *This Old House* TV series were looking for a flexible HVAC system to save energy while delivering independent zoning control.

Daikin's Solution

The team behind the Weston, Massachusetts, project decided to incorporate Daikin technology to successfully achieve their goals of energy efficiency, comfort, and LEED certification.

Application:

Residential

Location:

**Weston,
Massachusetts
USA**

In the first-ever *This Old House* TV series project to feature the construction of a pre-fabricated timber-frame home, the builder Bensonwood Homes and the team from the PBS home improvement series chose an advanced, innovative Variable Refrigerant Volume (VRV[®]) air conditioning system designed by Daikin.

When plans were underway for the unusual timber-frame home in Weston, Massachusetts,

intended to earn LEED Silver Certification for its environmentally sustainable design, the team decided a VRV air conditioning system would be the best choice for the home.

A VRV system has the ability to control the amount of refrigerant flowing to each of the system's evaporators, enabling individualized comfort control and superior energy efficiency. The Daikin system includes two, three-ton VRV-S[®] outdoor units, whose



The four-bedroom prefabricated home, received a LEED Silver Certification from the United States Green Building Council for its sustainable design.

capacity allows for precise temperature control over the entire, 3,800-square-foot home. Its ability to perform at top efficiency results in lower energy costs, especially under partial load conditions.

This is a feature that appeals to Amy Favat, who along with her husband Pete, are homeowners of the two-story residence constructed in modular panels at Bensonwood's New Hampshire factory and shipped to Weston for

Favat said that neither she nor her husband grew up with air conditioning in their homes. In the residence they lived before moving into their new home, they used bulky window air conditioning units in the bedrooms. "Even so, we only used them when we really needed them."



completion on site. "Anything we put into our home, throughout the entire process, had to be as efficient as possible. We didn't want anything that would waste energy," she said. "We wanted things simple. We still consider the fact that we have an air conditioning system at all to be real luxury."

The Daikin system's ability to control the operation and temperature of individual air handlers throughout the home was extremely important to the family, according to Mike Cappuccio, owner of N.E.T.R. Inc., the Woburn, Massachusetts, HVAC contractor which handled the installation. "The Favats can set each room's temperature level individually and the system will maintain the preferences automatically, making subtle and constant adjustments to ensure their comfort," he said.

Two Daikin VRV-S outdoor units each provide 3 tons of air conditioning capacity for the Weston House featured on the This Old House home improvement TV series. The system is ideally sized for residential applications.

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*Mike Cappuccio
N.E.T.R.*

The indoor air handler units used in the Favat's VRV-S system, including several ductless wall-mounted units and slim duct built-in concealed ceiling units, respond to climate, lighting, and occupancy changes



“The indoor air handling units used in the Favat’s VRV-S system, including several ductless wall-mounted units and slim duct built-in concealed ceiling units, respond to climate, lighting, and occupancy that cause temperature and humidity fluctuations.”

*Mike Cappuccio
N.E.T.R.*

which can cause temperature and humidity fluctuations.” The units are located in each of the children’s bedrooms, the guest room, the master bedroom, the kitchen, family room, and dining room on the first floor, and the media room on the ground floor.

Amy Favat agrees the flexibility the new system gives the family is one of the features she likes best. “Right now, we’re finding that the unique design of Bensonwood’s timber-frame home keeps us cool, naturally, most of the time. But when we need cooling when the weather gets hot and humid, it’s great to be able to use exactly what we need, where we need it,” she said. “At night, for instance, we may only use the air conditioning when we retire to our bedrooms in the evening. That is an energy-

Concealed ceiling units, (above) installed between the rafters deliver the conditioned air to the family room (above). The home’s media room (lower right) and bedrooms (upper right) use FXAQ wall-mounted units requiring limited room for duct installation.



saving feature of this system that we love.” She added the actual quality of the cooled air generated by her system is something else her family likes about the new system. “It’s not the Arctic-type of cool you feel in

a shopping mall. Instead, it’s a very, very comfortable type of cool, which we prefer.”

N.E.T.R.’s Cappuccio collaborated with the project teams to design and implement the system for the Weston

project. While the home's VRV-S heat pumps can provide both heating and cooling for the home, it was decided to confine the use of the Daikin system for air conditioning, and use radiant floor heating in the winter.

N.E.T.R has been installing Daikin single-split, multi-split, and VRV-S systems for several years in the Boston area, so the company was familiar and

comfortable with the intelligent features of the AC system.

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*Amy Favat,
Owner*

"From our point of view, the VRV-S chosen for the Favat home was perfect because it enabled them to conceal some units in areas like the family room and master bedroom, and use wall-mounted units in others; it fit the space constraints of the timber-frame design; and it complied with the family's wish to avoid unnecessary piping and ductwork in the interior and exterior of the home," said Cappuccio.



The Daikin VRV-S installed in the Favat home enabled them to conceal some units in areas like the family room and master bedroom, and use wall-mounted units in others. It fits the space constraints of the timber-frame design; and the family could avoid unnecessary piping and ductwork in the home.

Amy Favat, who has been living in the new, LEED Silver-certified home since 2008, is very grateful for the experience and the craftspeople that have made her home so comfortable. "So much of this was way over our heads, so we were fortunate to be a part of the process while getting assistance and guidance from so many knowledgeable people," she said. We love our home now."

Additional Information

Product Profile Daikin Equipment

Daikin Product Profile

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|-----|-------------|------------------------------------|
| (2) | RXYMQ36MVJU | VRV-S heat pumps 36K/Btu/h |
| (2) | FXDQ12MVJU | Concealed slim duct 12K Btu/h |
| (1) | FXSQ18MVJU | Concealed ducted 18K Btu/h |
| (1) | FXDQ24MVJU | Concealed slim duct 24K Btu/h |
| (4) | FXAQ07MVJU | Indoor wall-mounted units 7K Btu/h |
| (6) | KHRP26A22T | REFNET™ branch piping kits |
| (8) | BRC1D71 | 7-day programmable controller |

Location

Private Residence
The Favat Home
Weston, MA

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About Daikin AC

Daikin AC offers North America intelligent heating and cooling solutions with superior energy performance and sophisticated design. These advanced systems fall under the Daikin Altherma, Quaternity™, VRV®, VRV-S® and SkyAir product names. The company located in Carrollton, Texas, is owned by the Japanese-based Daikin Industries, Ltd. For more information, call 866-4DAIKIN or visit www.daikinac.com.

