

## Case Study

### Mitsubishi Electric Helps Family-Owned Business Solve East-Coast Winter Woes

As one of the owners of Dave's World – a supplier of modern energy-efficient equipment based in Dover-Foxcroft, Maine – Matt Scott has a long-standing relationship with ductless heat pumps. He encountered his first one while taking a refrigeration course after school and promptly fell in love. Dave's World, his proudly Maine-made and family-owned business, has been serving customers in the ductless market since 2006 and has been a Mitsubishi Electric Cooling & Heating (Mitsubishi Electric) Diamond Contractor® since 2013.

After Matt purchased his dream home in November 2015, he experienced an extremely cold winter during which he ran a system on fossil fuels alone. The house, which was built in 1989, sits on a lake and has a lot of southern exposure.

*Challenge: Optimize control and changeover for a heat pump and supplemental heating in a northeastern climate subject to extremely low temperatures*

Matt's home served as a beta test for hyper-heating technology supported by Mitsubishi Electric's distributed smart controls platform that includes the kumo cloud® app and kumo station®, a four-channel equipment controller that enables intelligent control of third-party equipment.

In describing the technology, Rodney Olson, senior director of controls and engineering at

Mitsubishi Electric, took care to explain that it was not a centralized control system. "It's actually distributed control that's done by Wireless Interfaces communicating to Wireless Interfaces without dependence upon the internet. This allows kumo station to control both the heat pump and the supplemental heating in a very efficient manner. The Wireless Interfaces are what make the decisions."

*Solution: kumo cloud®, kumo station® and Zoned Comfort Solutions® from Mitsubishi Electric*

The Wireless Interfaces in Matt's home receive information from Wireless Temperature and Humidity Sensors in each room and an outdoor air temperature sensor outside of the home. As smart controllers, the Wireless Interfaces communicate with each other, and, using the data provided by the sensors, collectively calculate the most efficient and cost-effective heating source to use. In addition to sensor data, the calculations are informed by variables including the efficiency of the heat pump, the efficiency of the fossil fuel system, the cost of electricity and the cost of fossil fuel.

In addition to seeing his heating costs reduced significantly from what he paid the previous winter, Matt was pleased with how the system automates changeover and coordinates cooling, heating, humidification and ventilation based on his preferences and ambient conditions. He said, "One of the

coolest parts about the product is that it does it on its own. You set the settings and it knows. It does the work for you. You don't have to worry, say, when you're out of town and have to worry about what the temperatures are outside. It just does it on its own."

*Result: An updated system that automates changeover and coordinates cooling, heating, humidification and ventilation based upon user preferences*

As an HVAC contractor and a homeowner, Matt can speak from first-hand experience about the benefits of kumo cloud. "One of the nicest parts of being a part of this is to be able to sell it. I see this product and its ability to use both stages, two heating sources, as being of huge benefit to homeowners, especially here in Maine. That's what we're doing at our house right now because it can get 20 below here. It's really nice to have a device that you can control from your pocket, right from your phone and be able to know that your house is safe and that you are not going to have a heat pump failure and you have a backup. We're really looking forward to going to market with this product. I think it's going to really tie together that typical Mainer that needs two different sources of heat to have peace of mind."





*Matt Scott's home in Dover-Foxcroft, Maine. Scott has been a Mitsubishi Electric Diamond Contractor since 2013.*