

CHOOSING ELECTRIC FOR A NEW CONCORD HOME



For MaryWren and Philip van der Wilden, going electric with their new build was a top priority.

Homeowners: MaryWren and Philip van der Wilden

Year Built: 2019

Style: Classical Greek farmhouse

Size: 3700 sqft + finished basement

Electric home features:

- Air-source heat pump for heating and cooling
- Electric vehicle level 2 charging
- 2 heat pump hot water heaters
- Energy Recovery Ventilation
- 11" double-frame construction
- Triple-glazed windows

When their boys grew up and moved out, longtime Concord residents, Philip and MaryWren van der Wilden knew it was time for a differently configured home. They wanted space for when family was visiting, but they also wanted to have a comfortable smaller space suited just for the two of them. The answer was a custom-designed new build where part of the house could be closed off when not needed, thereby saving on bills and energy use.



Deciding to go electric

Having always been environmentally-minded, the van der Wildens knew they wanted their new home to have a low carbon footprint and low emissions. They knew that making energy-efficient choices would mean higher upfront costs, but would pay back over time. "Why choose to build a brand-new home with old-school fossil fuels," MaryWren said? Philip and MaryWren needed to factor the cost of their visions for climate-friendly options – heat pumps, hot water heaters, insulation and solar – into their overall budget. They were fortunate to work with a "green" builder-architect team that they fully trusted, who helped them to understand which electric home options made sense for them, their project and their budget.

Building and installation

For their new 3,700 sq ft home, they chose air-source heat pumps for heating and cooling, five air distributors inside and two air handler units outside. Unlike retrofitting an existing home where homeowners often elect to keep their old heating system as "back-up", their heat pumps were the sole source of heating and cooling, and Philip and MaryWren say they have been completely satisfied with the level of comfort and warmth provided through two long New England winters so far. Even on the sub-zero days? "Even on the sub-zero days," Philip affirmed. They also installed an Energy Recovery Ventilator (ERV). "When the building envelope is this tight, there's little to no movement of air in or out," Philip told us, "which is why our builder/architect team strongly recommended installing an ERV to keep air circulation fresh and clean. We're very happy we did this as it dehumidifies too, meaning we don't need to run the AC as often."

Philip and MaryWren considered solar PV panels for their new home – which would help charge their electric Chevy Bolt too – and sited the house so that these could be added in time. “We wanted to live with the house and its new systems for a few years and see how it all worked out” Philip said, adding that they hope to act on this down the road.



\$3,000

Annual energy savings

42

HERS Rating

"Do your homework, learn about the new technology available, get multiple quotes and stay on top of rebates."



Energy efficiency is key to success

In addition to heat pumps, the new house has two heat pump hot water tanks, triple-glazed windows and 11" double-framed insulated walls. As Philip says, there's "no point having a top-of-the-line heating system if all that heat is leaking out through gaps, leaks and thin walls." The van der Wildens maintain a small propane tank for stovetop cooking just out of personal preference.

Significant savings right off the bat

The van der Wildens knew that the benefits of choosing electric in their new home would result in lower bills as well as a lower carbon footprint, but they were surprised at how quickly they saw returns on their investment. "We've lived here just 18 months now", said Philip, "but already we see a significant reduction in our utility bills of about \$3,000 per year compared to our old home." Their previous Concord property was natural gas-powered and comparable in size, although an older property (built 1892). When their new home recently scored extremely well – 42 compared to a standard new home score of 100 -- on the HERS index (Home Energy Rating System) and the "blower test" (a test conducted by energy auditors to determine how airtight and therefore energy-efficient a house is), the van der Wildens knew that construction had met their personal environmental goals too.

Advice for others

Philip and MaryWren are very happy with the choices they've made and recommend thinking about insulation and weather-stripping "hand-in-hand" with heat pumps. It's the combination of proper, top-grade insulation, triple-glazed windows, heat pumps and an ERV that has been a win-win for their home and for the environment. MaryWren added that identifying a reputable trusted expert, whether a builder or a contractor, to work with is very important. "It's an investment, for sure," says MaryWren, "but it's a good investment. And, for us, it was important to do the right thing environmentally."

Interested in how heat pumps can make your home more comfortable and sustainable? Visit ConcordCleanComfort.org for information about coaching, rebates, and more.