

In his own words:

STAYING COOL WITH A HEAT PUMP

When he wanted air conditioning, Lester Shen, whose home has a boiler and no ductwork, turned to a ductless heat pump around 2016.

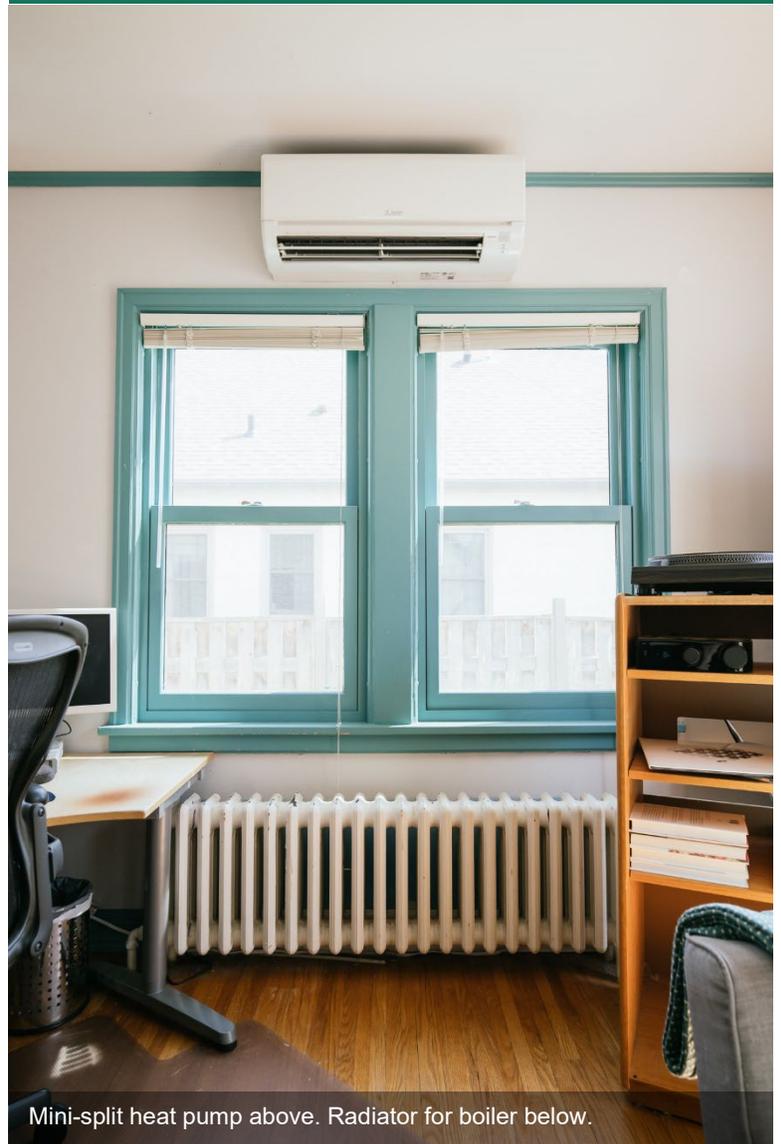
“I had a boiler from the 1950s that reached the end of its life. It was time to replace it and we installed a 95% efficient condensing boiler. The boiler system can’t provide cooling, so we were using window air conditioners and room fans to circulate the air around the house. It was noisy and inefficient. We decided to install a heat pump with mini-splits for cooling. Avoiding the inconvenience of taking the window air conditioners out every year, the higher energy efficiency, quieter delivery of cooling, and comfort improvement made the heat pumps worth it.”

Before the new system, Lester had made sure his home was not going to leak conditioned air. “When I bought the house in 1989, I thought ‘this is a perfect time to have it insulated.’ The house needed insulation, and I was connected with a contractor that I knew would give me good insulation levels and do excellent air sealing.”

“I also use the heat pumps to provide heating until the outdoor temperature gets below about 20 degrees in November. We use the boiler from November to early March, then use the heat pump again for heating until we switch to cooling for the summer. The house is well insulated, and the heat pump keeps us comfortable.”

House Details:

- Year built: 1931
- Size: 1,360
- Location: Minneapolis, MN
- Utility: Xcel Energy for electricity



Mini-split heat pump above. Radiator for boiler below.

Projects:





Air source heat pump condenser and Lester and friend behind



Condensing boiler, Lester, and technician, Angeline



Mini-split heat pump head in Lester's office

Equipment Details:

- Cold Climate Air Source Heat Pump – Mitsubishi 2 ton condenser with 4 mini-split heads in two bedrooms, an office, and dining room. Second Mitsubishi 1.5 ton condenser with 1 mini-split head in basement bedroom.
- Boiler – Well-McLain 95% efficient condensing boiler.
- Insulation and Air Sealing – Dense packed walls to R-14 and insulated attic to R-50. Quality air sealing ensures the home is airtight.
- Ecobee thermostat for boiler and Cielo smart thermostat for mini-splits are controlled via smartphone and enable scheduling and setbacks to save energy.



Questions about switching to all electric appliances at home?

Contact an Electrify Everything Advisor:
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