

West Michigan

LITTLE RESIDENCE

PROJECT DETAILS:

COMPLETED:
2021

CLIMATE:
Cool/Humid Zone 5A

FOOTPRINT:
• Single-story, single-family
• 1,853 square feet
• 4 bedrooms
• Built in 2003

CERTIFICATIONS:
• Pearl High-Performing Home Platinum
• Department of Energy (DOE) Home Energy Score 10 of 10
• GreenStar Homes Gold certification pending

PROJECT TEAM:
General Contractor
Brett Little, LEED APH, LFA, GHP
HVAC Contractor
Hendricks Heating and Cooling



EQUIPMENT

- P-Series single-zone mini-split system
- (1) PUZ-HA Hyper-Heating INVERTER® (H2i)® Outdoor Unit
- (1) PVA Multi-position Air Handler

PROJECT INSIGHTS

As an educator and advocate for sustainable homes, Brett Little uses his house's retrofit to demonstrate how millions of Americans could live in healthy, low-carbon homes with upgrades paid for through mortgage refinancing, construction financing and home equity lines. Little increased his monthly mortgage by \$40 to pay for improvements like replacing his malfunctioning gas furnace with a ducted air-source heat pump from Mitsubishi Electric. All-electric heating was essential as the retrofit's green design eliminated the hazards and costs of gas lines and combustion.

Little's West Michigan home is subject to brutal winters. Equipped with a variable-speed compressor and hyper-heating technology, the Mitsubishi Electric heat pump uses less energy than a gas furnace and maintains comfortable indoor temperatures during extreme weather without auxiliary heat. The heat pump's environmental impact will only get smaller as Michigan's electricity grid adds renewable energy and reduces dependence on coal.

The project team used high-performance home programs including Pearl Certification to set performance targets and guide the work. Little's low-carbon home achieved Pearl Platinum and a 10 of 10 DOE Home Energy Score.

"We have to move beyond single- and double-stage heat pumps. With those systems, people try to handle extreme weather by oversizing, but that wastes energy and creates comfort problems during most of the year. If we right-size variable-speed heat pumps, they can match heating and cooling loads by throttling up and down. That's how we can lower emissions and keep people comfortable year-round."

— Brett Little, homeowner and education manager, GreenHome Institute

BENEFITS

- Healthy, electrified, low-carbon home
- Single system for gas-free heating and energy-efficient air conditioning
- Variable-speed compressor to match heating and cooling loads
- Reliable cold-climate performance without auxiliary gas or heat strips
- Electrified home sustainability increases as grid gets cleaner

Learn more about all-climate heat pumps at [MitsubishiComfort.com](https://www.mitsubishicomfort.com)

The [GreenHome Institute \(GHI\)](https://www.greenhomeinstitute.org) provides educational programs and advocacy to empower people to make healthy and sustainable choices during renovations and new construction. [Visit the GHI YouTube channel to learn more about Little's low-carbon retrofit.](#)

