

# Energy Cost Model

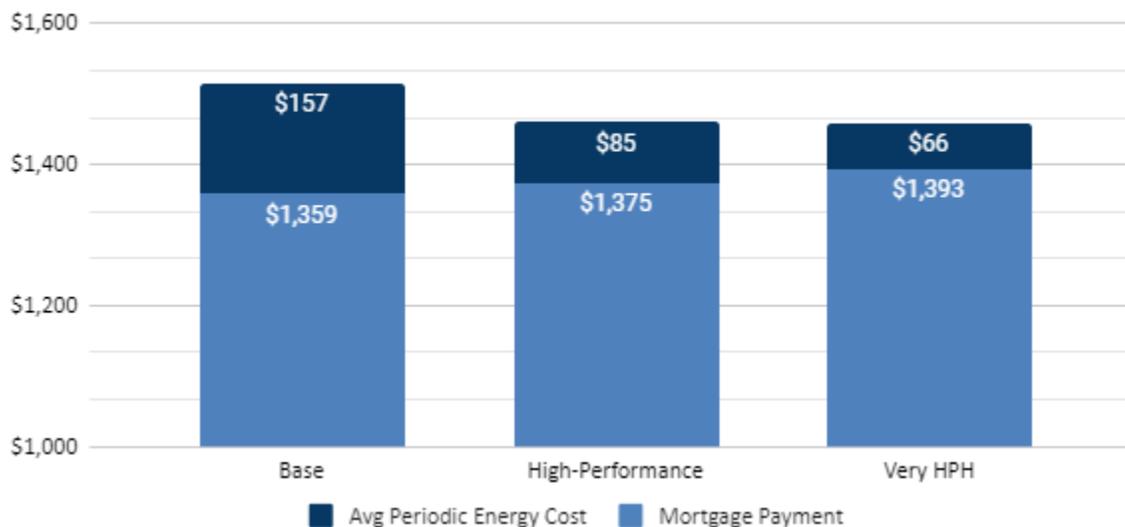
## Heating a 1,728 square foot home

This document compares the cost to own and heat a Vermont home built at three levels of efficiency. The homes are identical except for the insulation, types of windows, and airtightness. For additional efficiency factors, see our “Building Efficiently” document.

Over the life of the mortgage (30 years), the more efficient options save about \$19,000. While the most efficient house (“Very High Performance”) costs a few hundred dollars more than the middle one, its energy use will *always* be lower, its heating appliances will be cheaper to replace and maintain, it will be more comfortable in very hot and cold weather, and it will produce fewer greenhouse gas emissions (if carbon-based fuels are used). This calculation does not factor in inflation in energy cost; if inflation were 2% annually, the Very High Performance house would save \$4,000 over the middle option and \$44,000 over the Base over 30 years.

	→ More efficient →		
	Base Code-Compliant House	Efficiency VT High Performance House	Very High Performance House
Cost to build	\$355,723	\$362,965	\$367,836
Deposit + mortgage + heat + hot water for 30 years, minus incentives	\$616,768	\$597,529	\$598,241
Savings after 30 years compared to Base	\$0	<b>\$19,239</b>	<b>\$18,527</b>

The monthly cost for mortgage payments plus heat and hot water are highest for the least efficient house. The energy savings of the more efficient building choices more than make up for the larger mortgage.



The three efficiency levels of the 1728 ft<sup>2</sup> house are:

	Base	High-Performance	Very High Performance
Walls (R)	10	42	70
Ceiling (R)	38	60	90
Windows (u)	0.35	0.21	0.13
Slab (R)	21	30	45
Air changes per hour	6	1	0.6

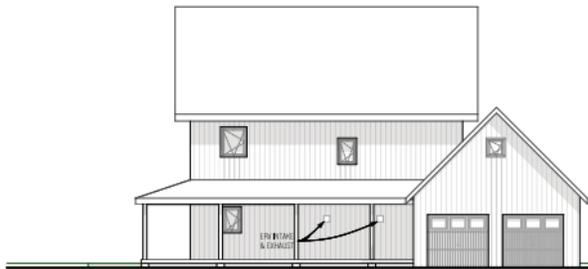
Dimensions: 24' x 36'; 824 square feet per floor. Garage not included in energy calculations.



WEST ELEVATION



EAST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION



FIRST FLOOR



SECOND FLOOR