



JUNEAU SUCCESS STORY

// We've been heating 1,900 ft² with two monitor stoves, along with electric baseboards for backup in winter. As the oil stoves aged, we looked for alternatives that would save money and get us off fossil fuels. Hearing about heat pumps at last year's Home Show, we did our homework and chose to have 2 mini-split air source heat pumps installed as direct replacements for the oil stoves.

The upstairs unit is rated at 12,000 BTU and the downstairs unit at 9,000 BTU. Total installation cost was \$5,855. Performance and cost efficiency have improved markedly! Electrical power usage for the heat pumps and baseboards combined have been about \$35 more each winter month than prior use with baseboards alone (about \$85/month). And now there are no oil bills, which averaged \$135 per month in winter.

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MH and DW, WEST JUNEAU

RENEWABLE JUNEAU

An education and advocacy nonprofit promoting local renewable energy and energy efficiency to create a healthy, prosperous, and low-carbon future for Juneau.

www.renewablejuneau.com

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RENEWABLE JUNEAU'S

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Air Source HEAT PUMP Guide

- **Slash Your Heating Bill by 66%**
- **Heat with Local Hydropower**
- **Pays for Itself in 4-6 Years**
- **Zero Carbon Output**

WHAT IS A HEAT PUMP?

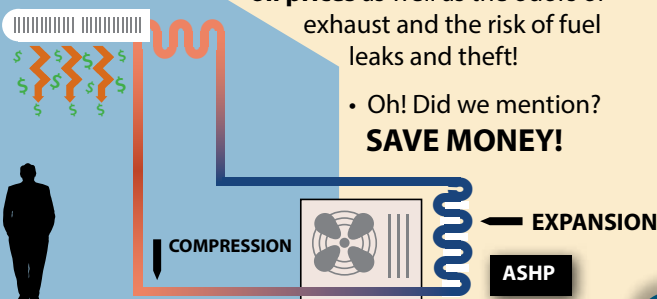
This guide focuses on air source heat pumps (ASHP), the type most often used in Juneau. The other types, ground source and water source are less common and more expensive, yet both are also used in Juneau. Heat pumps are basically refrigerators in reverse: moving heat energy from the outdoors into your home.

Unlike oil stoves and electric baseboard heaters that use energy to make heat, heat pumps use energy (electricity) to move heat, bringing in more energy as heat than the equivalent electrical energy used to move it.

The typical ASHPs used in Juneau are 'mini-split ductless systems' that excel in our climate. They have an outdoor condenser unit that pushes heated refrigerant through narrow tubes to one or more indoor evaporator/blower units. One outdoor unit can power up to 4 indoor units, allowing precise control of temperature zones in the home. Mini-splits use advanced compressor designs and variable speed AC to DC inverters, allowing the units to work efficiently and quietly between temperatures of -15F to 150F. Additionally, heat pumps can operate as air conditioners in the summer.

WHY SHOULD I BUY AN AIR SOURCE HEAT PUMP?

- ASHPs are about **3x as efficient** as electric baseboards
- **Cut your heating bills by up to 2/3rds!**
- **Reduce your carbon foot print!** Juneau heat pumps are powered by non-polluting hydropower!
- Free your household from **fluctuating oil prices** as well as the odors of exhaust and the risk of fuel leaks and theft!
- Oh! Did we mention? **SAVE MONEY!**



HOW MUCH \$ CAN I SAVE?

Savings can be **as much as 1/3 to 2/3** of your heating bill. One Juneau installer estimates that heating a typical Juneau home with an oil furnace costs \$3,106/year, whereas a ductless ASHP would cost \$1,456 for the same amount of heating. That is over \$135/month in savings! And, the price of Juneau hydroelectricity has remained stable for years while the price of oil can change weekly, sometimes dramatically!

CHOOSING A HEAT PUMP

Air or ground source, which is right for your home? Here are some pros and cons to consider. In general, a ground source heat pump (GSHP) is an upgrade costing 2 to 3 times more than a conventional heating system.

GSHP's are significantly more expensive than ASHP's, because refrigerant tubing must be placed underground, either in vertical boreholes or horizontally in a fairly large excavated area. GSHP's are more efficient than ASHP's because underground temperatures are much more stable than air temperatures. For that reason, a GSHP can be the sole heating system for a home, whereas a backup system, such as electric baseboards, is recommended for ASHP systems in cold climates such as Juneau.

Ductless ASHP systems are relatively easy to install, but both air and ground source systems require knowledgeable technicians to properly select the heating capacity and to properly place the indoor unit(s) in relation to the configuration of rooms in a home. These considerations help to explain why there have been so many ASHP's installed in Juneau in the past two years.

CHECK OUT THESE ONLINE RESOURCES:

- renewablejuneau.wordpress.com/our-work/heat-pumps
- energy.gov/energysaver/heat-pump-systems
- www.youtube.com/watch?v=g39nM7GbSJA

HOW MUCH DOES IT COST?

For a retrofit, the total cost of the heating system and labor will depend on what you already have and how extensive your conversion will be. In general, you can expect costs to run between \$3000 and \$15,000 for installation of a mini split ASHP system. If you only want to heat a new addition, a single ASHP may be the best solution. If a full conversion is too much, consider an ASHP for supplemental heat for the main living area. A one-to-one replacement of a Toyo or Monitor stove is fairly simple and can cost between \$3000 and \$6000.

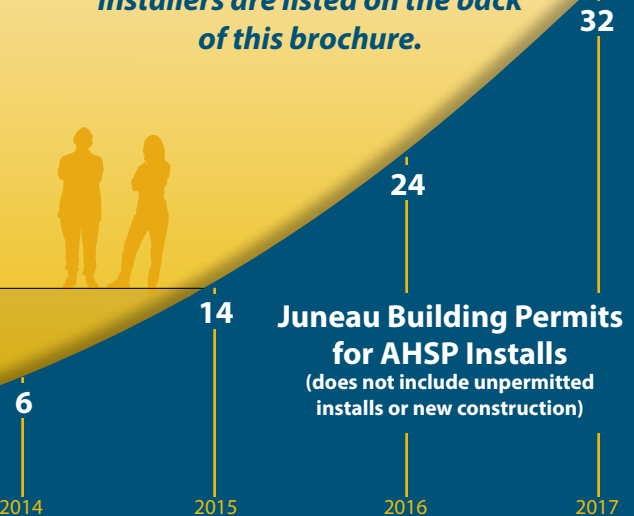
In addition to local banks and credit unions, the Alaska Housing Finance Corporation (AHFC) is one source of financing. Although their Home Energy Rebate Program is closed to new applicants, the AHFC has several loan programs to look into:

- Energy Efficiency Interest Rate Reduction (EEIRR)
- Energy Rebate for New Construction
- Home Energy Loan
- Weatherization at No-Cost

A heat pump can also help you get a 5 star rating and a lower interest rate on your new house.

CONTACT A LOCAL INSTALLER for a FREE estimate!

Installers are listed on the back of this brochure.



Juneau Building Permits for AHSP Installs
(does not include unpermitted installs or new construction)