You Should Insulate First

Minimum insulation levels should be in place prior to the installation of a heat pump. For more information, refer to the City's Insulation Buyer's Guide.

Heat Pumps Are A Technical Purchase

In order to make an informed heat pump purchase; there are several decisions that need to be made. There are numerous options to consider when you shop for a heat pump, most of which significantly affect cost. Your main purchase decisions should be equipment size and efficiency.

Equipment Size

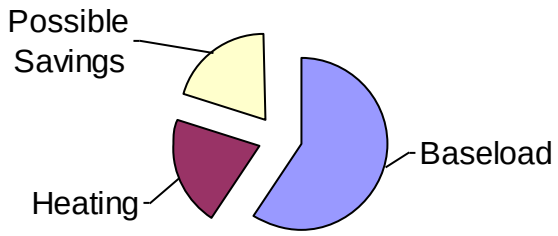
Bigger is not necessarily better. A properly sized system includes an oversizing allowance of up to 150% of needed equipment size. Oversizing beyond 150% costs more, causes increased operating cycles and reduced energy efficiency, and significantly reduces the life of the equipment. The Contractor is required to perform heat transfer calculations in accordance with City standards to properly size your heat pump.

Energy Efficiency

The main energy efficiency rating is the Heating Season Performance Factor (HSPF). Other ratings include Co-efficient of Performance (COP). The energy efficiency ratings for cooling are Seasonal Energy Efficiency Ratio (SEER) and Energy Efficiency Ratio (EER). Dual fuel heat pumps are also rated by an Annual Fuel Utilization Efficiency (AFUE). The higher the rating the more efficient. More energy efficient equipment generally costs more.

Energy & Cost Savings

The average home in Port Angeles has an annual energy use of about 17,300 kWh's at an annual cost of about $1,138 If you install a heat pump to replace your electric furnace, baseboard heaters, or cable system, you may save up to 50% of your energy use for home heating each year. For the average home in Port Angeles that translates into a savings of $240 each year.



Heat Pump Economics

The best time to install a heat pump is when your heating system fails, requires significant service, or is beyond its service life.

The increased cost of a heat pump is normally an attractive investment when you have to replace a failed system. You may also be able to justify the cost of a heat pump if you are about to incur expenses to keep your heating system in operating condition (e.g. replacing a compressor). If your heating system is fifteen years or older it has reached its service life.

You enjoy a significant economic benefit each day your system operates beyond its expected life. However, you may become increasingly concerned about the reliability and safety of a heating system that is in use beyond its expected service life. In some cases electrical service upgrades may be required to install a heat pump.

Heat Pump Buyers Guide

Weatherwise Service

Heat Pump Buyers Guide

Weatherwise Service is an Energy Conservation Program offered by the ***City of Port Angeles*** in cooperation with the ***Bonneville Power Administration*** and the ***Conservation rate Credit***

For more information contact us by mail at:
Weatherwise Service
City of Port Angeles
P.O. Box 1150
Port Angeles, WA. 98362
phone:
Message Line: 417-4713
FAX: 417-4709
or visit:
Conservation Programs
on the City's website at:
www.cityofpa.us

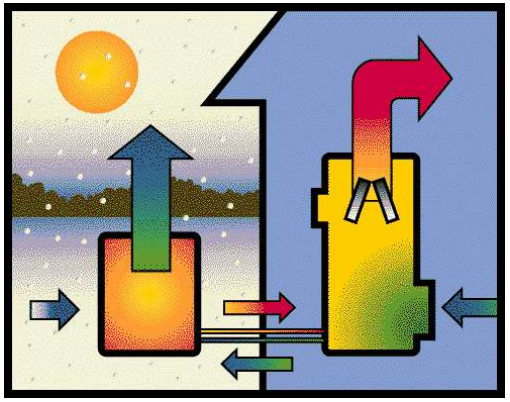
Programmable Thermostat Options

There are three options available for indoor programmable thermostats. A 5/1/1 day thermostat allows weekdays, Saturdays and Sundays to have unique schedules. A 5/2 Day allows weekdays and weekends to have unique schedules. A 7-day independent thermostat allows each day to have a unique schedule.

Types of Heat Pumps

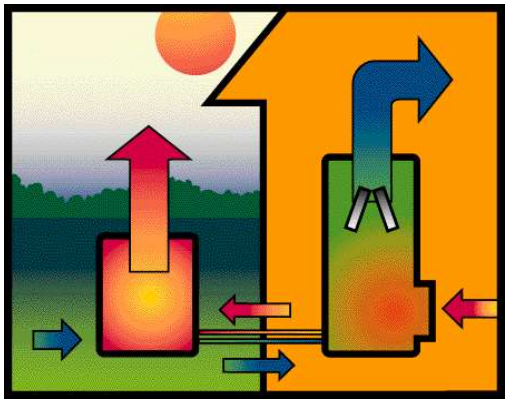
The most common type of heat pump installed is an all-electric air-source heat pump. Ductless Heat Pumps offer easy installation for homes without an existing forced air heating system. Water and ground source heat pumps offer the highest energy efficiency but are rarely installed due to their increased cost.

Winter Heat Pump Operation



During the winter, the outside coil absorbs heat from the outside air and transfers it via refrigerant lines to the inside coil, where it is released to warm your home. An auxiliary (back-up) electric resistance heater works with the heat pump when the outdoor temperature goes below the balance point.

Summer Heat Pump Operation



During the summer, heat is extracted from the home by passing indoor air across a refrigerant coil in the inside unit. The heat is then carried by lines to the outside unit, where it is released to the outside air which cools your home.

The Refrigeration Cycle

- The compressor (1) pumps the refrigerant to the reversing valve (2).
- The reversing valve directs the flow to the inside coil (condenser) where the fan (3) cools and condenses the refrigerant to liquid.
- The air flowing across the inside coil removes heat (4) from the refrigerant. This is the air that blows into the home.
- The liquid refrigerant bypasses the first metering device and flows to the second metering device (6) at the outside coil (evaporator) where it is metered.
- Here it picks up heat energy from the air blowing (3) across the outside coil (evaporator) and the air comes out cooler (7).
- The refrigerant vapor (8) then travels back to the reversing valve (2) to be directed to the compressor to start the cycle all over again (1).