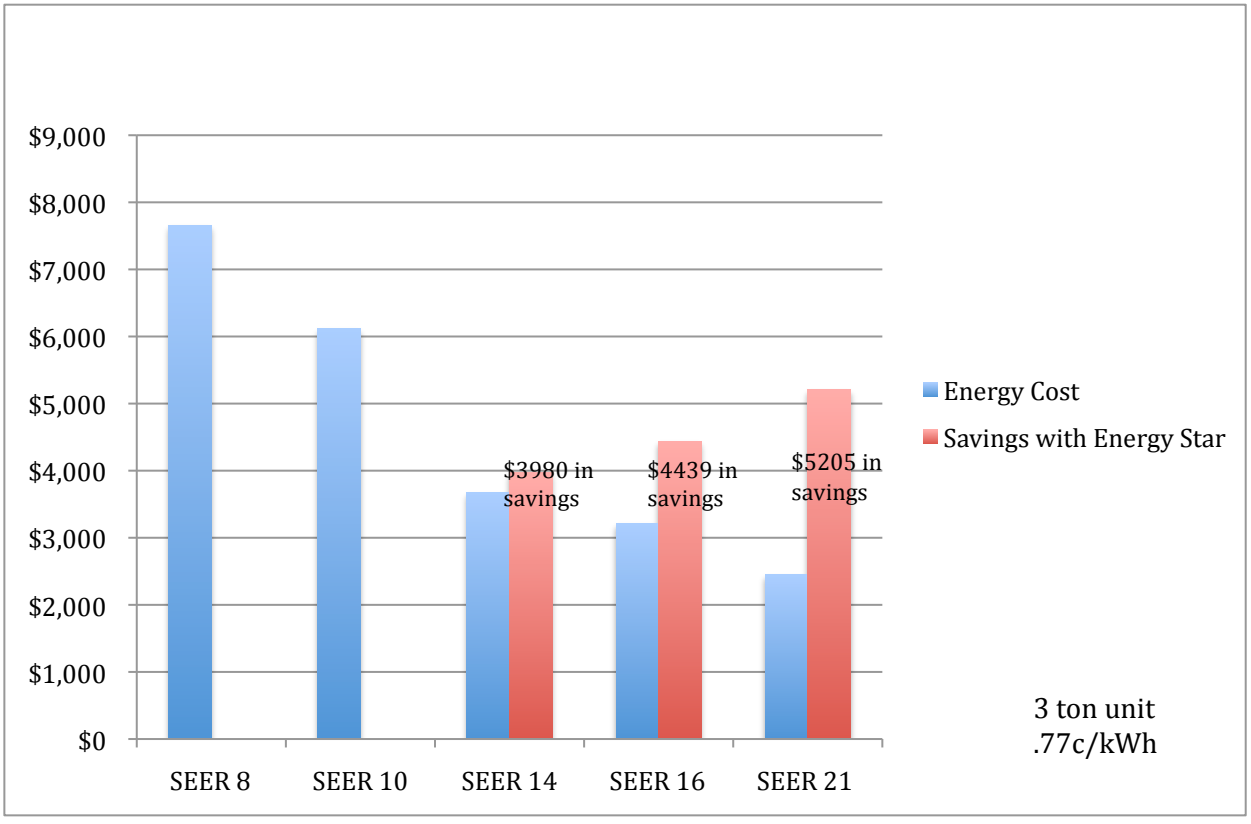
SEER stands for Seasonal Energy Efficiency Ratio.

The higher the SEER, the more efficient the unit, and the more energy savings are available. It was made as an alternative to the original EER to better approximate the actual cooling cost of operation of an "appliance" based on the installed climate zone. Seer is calculated by the cooling output for a typical cooling season divided by the total electric energy input during the same time frame. The minimum SEER currently allowed to be manufactured is 13.

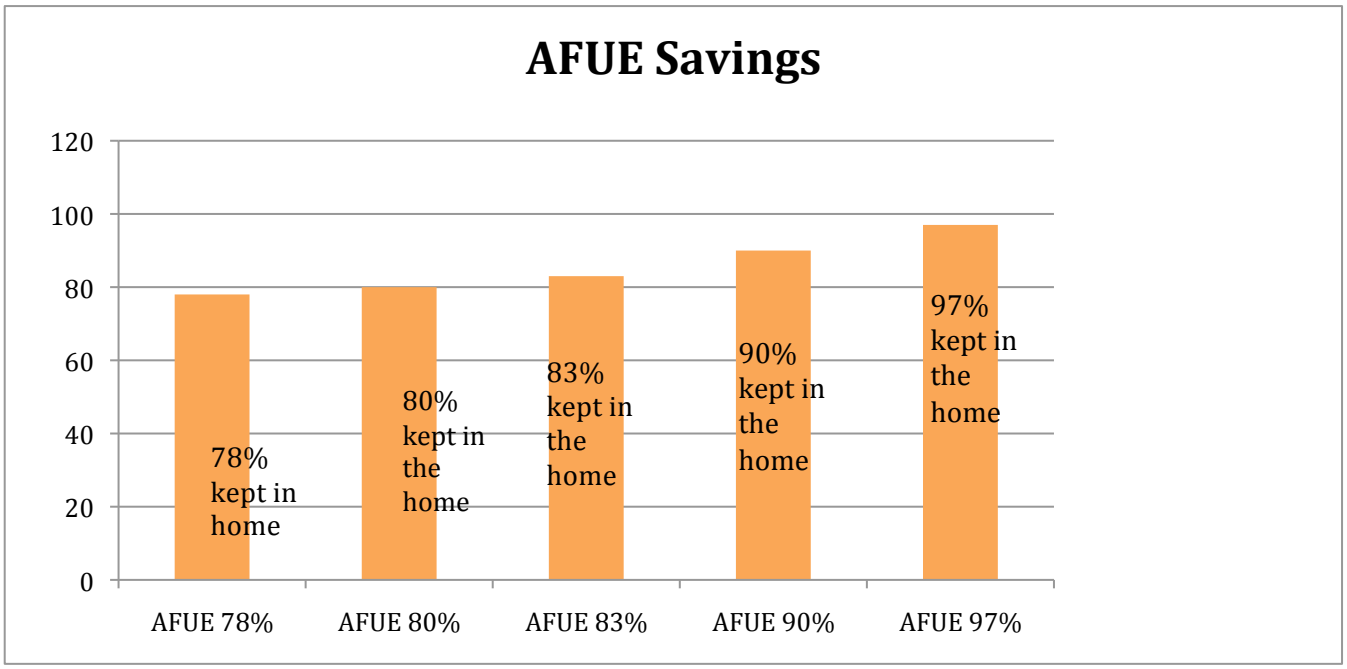
The SEER's formula:

$$\text{SEER (Seasonal Energy Efficiency Ratio)} = \frac{\text{Total number of BTU of heat removed over cooling season}}{\text{Total Electrical Energy (watt/h) consumed over the Cooling season}}$$



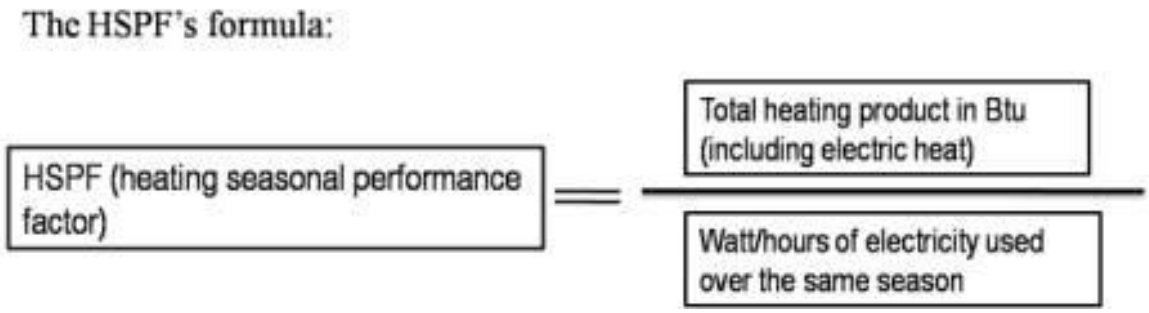
AFUE – Annual Fuel Utilization Efficiency

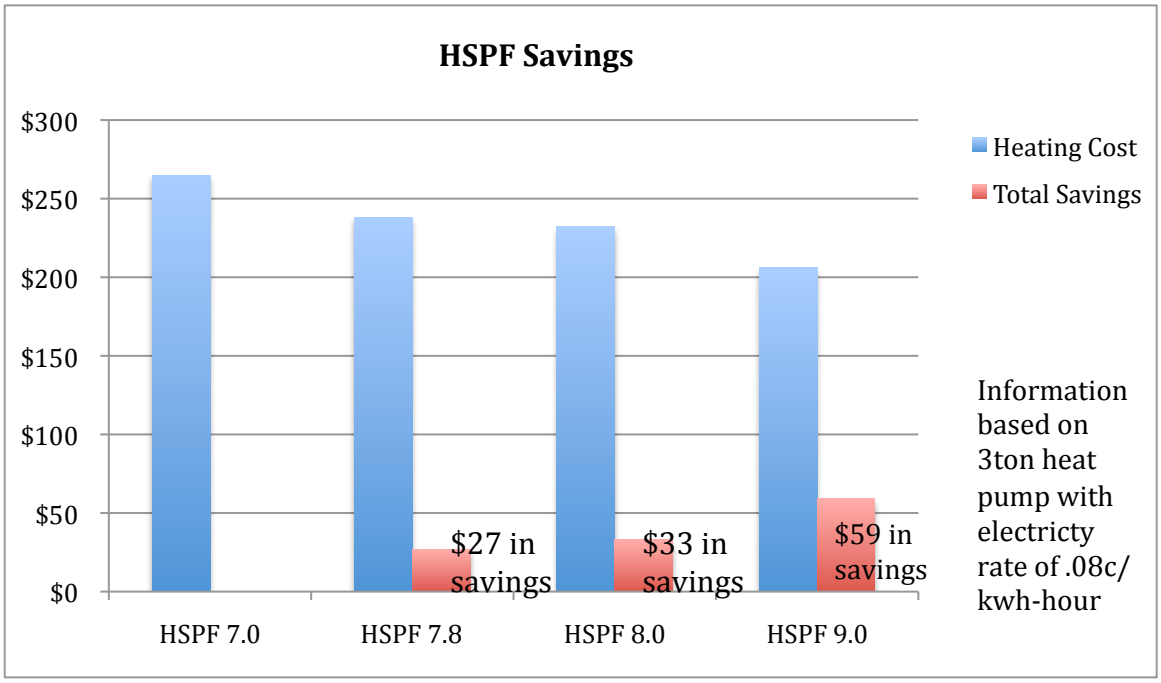
Measures the amount of heat actually delivered to your house compared to the amount of fuel that you must supply to the furnace. Annual fuel utilization efficiency is a rating that shows how efficient a gas furnace converts fuel to space heat (through combustion) in comparison to the amount of fuel the furnace used. It expressed as a percentage. The higher the rating (%) the more you heat that is actually kept in your home. For example, a 98% afue system keeps 98% of the heat in the home only 2% escapes.
Units manufactured must have a minimum AFUE of 78% in US.



HSPF stands for Heating Seasonal Performance Factor.

HSPF is specifically used to measure the efficiency of air source heat pumps. The HSPF is a heat pump's estimated seasonal heating output in BTUs (the quantity of heat required to raise 1 pound of water by 1 degree Fahrenheit) divided by the amount of energy that it consumes in watt-hour. Heat pumps manufactured after 2005 are required to have an HSPF of at least 7.7.





HVAC Unit Size

Accurate sizing is a critical first step in the efficient operation of HVAC systems. The U.S. Department of Energy (DOE) estimates that most current residential systems are oversized and would benefit from correct sizing. Correct sizing can reduce cyclic losses and improve part load humidity control, however, energy conservation can be compromised quickly if a new system's size is based on an old system's capacity. Correct system sizing requires considering many factors other than simply reading the nameplate of the existing unit. Key factors for correctly sizing a heating and cooling system include the following:

- The local climate
- Size, shape, and orientation of the house
- Insulation levels
- Window area, location, and type
- Air infiltration rates
- The number and ages of occupants
- Occupant comfort preferences
- The types and efficiencies of lights and major home appliances (which give off heat).

Homeowners should insist that contractors use a correct sizing calculation before signing a contract. This service is often offered at little or no cost to homeowners by gas and electric utilities, major heating equipment manufacturers, and conscientious heating and air conditioning contractors. Manual J, "*Residential Load Calculation*," published by the Air Conditioning Contractors of America (ACCA), is the recommended method for use in the United States.

Area (square feet)	Tons per unit	BTUs per hour
550-700	1.5	18,000
900-1200	2	24,000
1201-1500	2.5	30,000
1501-1800	3	36,000
1801-2100	3.5	42,000
2101-2400	4	48,000
2401-3000	5	60,000