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**HEATING AND COOLING SYSTEMS**



## TEXAS AGRICULTURAL EXTENSION SERVICE

The Texas A&M University System

Dear Energy Saver:

Fifty to seventy-five percent of the energy used in most homes goes for heating and cooling. Because heating and cooling systems are the prime energy users, careful planning, selection and maintenance of the equipment is important.

This letter series and other educational programs by the Texas Agricultural Extension Service provide information which will help you reduce energy consumption in your home. If you would like to receive other publications or know more about Extension programs, contact me.

Sincerely

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County Extension Agent

## TEXAS AGRICULTURAL EXTENSION SERVICE

The Texas A&amp;M University System



## HEATING AND COOLING SYSTEMS

Heating and cooling systems are the major users of energy in the home. Efficiency of these units can be improved without spending a lot of time, money or effort. Begin by cleaning or replacing air filters. Remove dust and dirt, which absorb heat and block the flow of air, from registers. Make sure the air flow is not obstructed by furniture placement in front of registers.

Have the system checked and serviced before start-up in the fall and spring. If the temperature is uneven, the system may need to be balanced.

A clock controlled thermostat, which turns down the system when you do not need warmth or cooling and turns it on just before it is needed, reduces utility consumption during the night or while the family is away during the day.

If you are thinking of purchasing a system for a new house or replacing a wornout system, consider both the purchase price and the cost of operation. An efficient unit will cost more initially, but will use less energy in operation. The efficiency is indicated by the Energy Efficiency Ratio. The Energy Efficiency Ratio (E.E.R.) compares the energy output in BTU's to the energy input in watts when the system is operating in the cooling mode.

The electric heat pump is predicted to be the most efficient way to heat the home in the future. The electric heat pump is basically a refrigeration system for heating and cool-

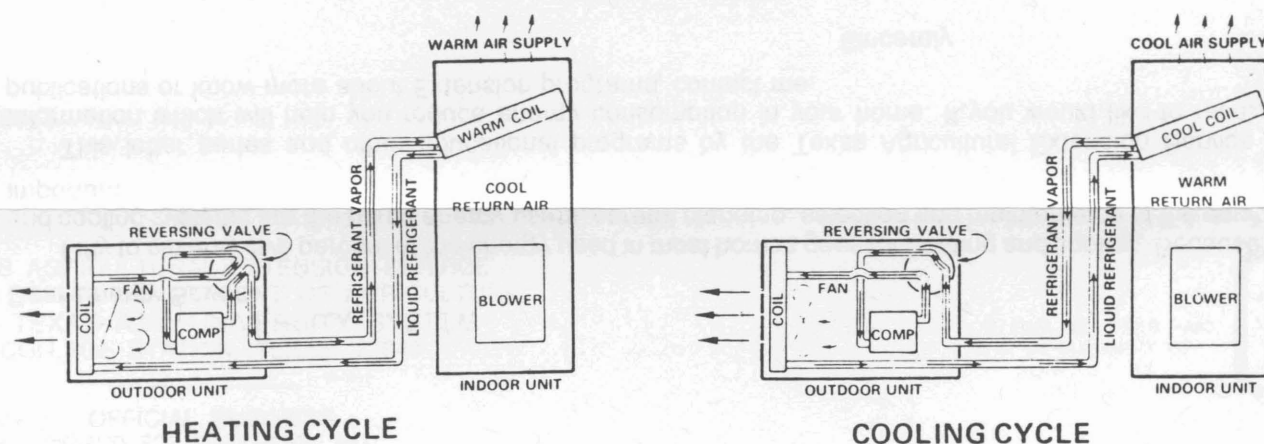
ing. It consists of a compressor that compresses the refrigerant gas and changes its temperature from low to high, an evaporator that provides cooling and a condenser that rejects heat. It uses only one-half (in some instances even less) the energy used by electric resistance-type systems currently used in homes. It is less expensive to heat with gas in most parts of Texas today, but the price of gas is predicted to rise more rapidly than that of electricity in the future.

The heat pump extracts heat from the outdoors and pumps it indoors. Heat is in the outside air even when the temperature is below freezing. When the temperature reaches the freezing point, supplemental heat is provided. The refrigerant, which is cooler than the winter air, circulates through the outdoor coil and picks up heat from the building.

When comparing different brands of electric heat pumps, the Energy Efficiency Ratio and the Coefficient of Performance are important. The Coefficient of Performance (C.O.P.) compares the amount of heat delivered to the amount of energy supplied. In temperate climates, such as those in Texas, the average C.O.P. is 2.25-2.5.

The initial cost of the electric heat pump is usually \$400 to \$600 more than that of other units. But, because the unit is less expensive to operate, the extra cost can usually be recaptured in 3½ to 5 years, depending upon local utility rates.

## The Electric Heat Pump



Prepared by Extension housing and home furnishings specialists, The Texas A&M University System.

Educational programs conducted by the Texas Agricultural Extension Service serve people of all ages regardless of socio-economic level, race, color, sex, religion or national origin.

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TEXAS AGRICULTURAL EXTENSION SERVICE  
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THE TEXAS A&M UNIVERSITY SYSTEM  
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