

Homeowner's Guide to Maintenance and Inspection

Volume 2, Number 3
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HOME INSPECTION
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Residential Cooling Systems

1. Central Air Conditioning also known as Refrigerant Cooling

Appearance and Operation

Central air conditioning has two main components: the *evaporator unit* near the furnace and the *condenser unit* located outdoors. The evaporator unit is usually shrouded in sheet metal so its presence may not be obvious. The condenser unit is a large metal box that sits outdoors on the ground with a horizontal fan at the top. Occasionally units may be located in attics or crawlspaces. Air conditioners work on the same principle as food refrigerators. A coolant, commonly freon, is run through a cycle of compression and evaporation that exchanges warm air for cool air in the home.

Advantages

Central air conditioning dehumidifies air in the summer, which makes the home more comfortable. It uses the same air ducts as the heating system so the entire living space is served. It is controlled by a thermostat, which strives to keep the home at a constant temperature.

Disadvantages

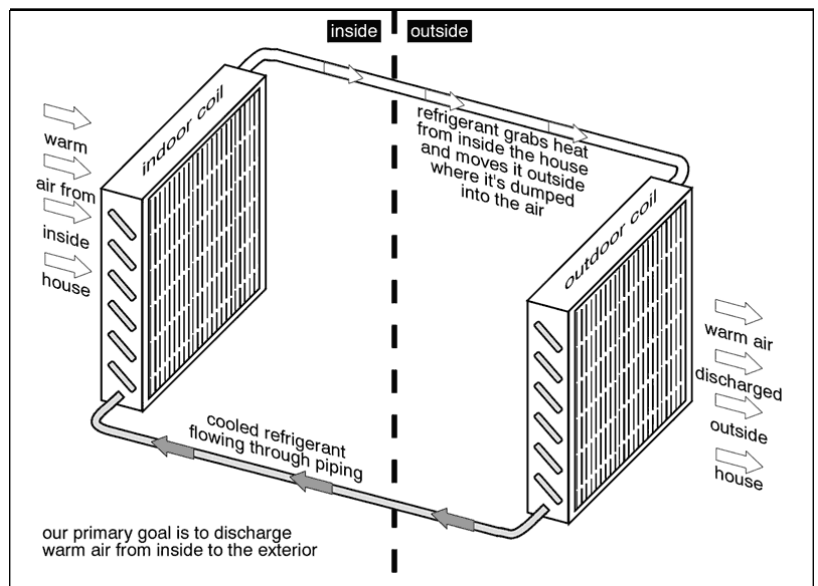
Central air conditioning is the most costly conventional cooling system. It is almost always installed in homes with forced air heating systems. Installing air conditioning in homes with other heating systems, such as radiant heating, will be more expensive because ductwork has to be added.

Maintenance

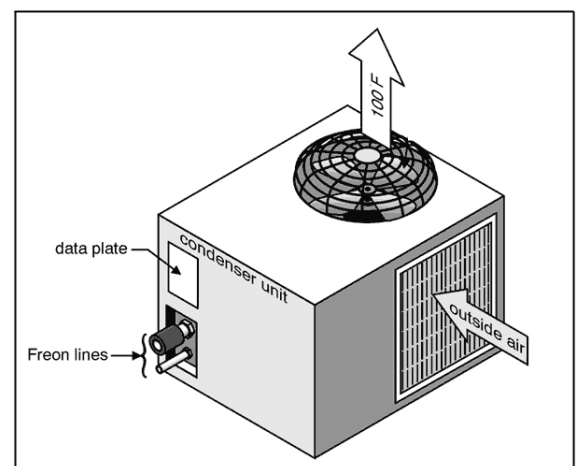
Air conditioning condensers should be kept free of leaves and other debris. Bushes should be cut back so air can flow through the unit. The air filter, usually the same as the furnace filter, should be changed monthly or per the filter manufacturer's recommendation. Many manufacturers and HVAC contractors recommend an annual tune-up to ensure efficient operation.

Lifespan – 10 to 15 years

Replacement Cost - \$2000 to \$4000



AIR CONDITIONING SCHEMATIC DIAGRAM



CONDENSER UNIT

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2. Evaporative Coolers also known as "Swamp Coolers"

Appearance and Operation

Unlike central air conditioning, an evaporative cooler is comprised of just one unit, usually located on the roof or sometimes installed through a wall. It is a large metal box with a fan inside. The fanned air passes over a water-moistened cooling pad, which cools the air that is delivered to the house. Windows should be opened part way to allow the cool air to enter the house and push the warm air out through the windows. Some systems use ducts but most deliver cool air only through the main opening.

Advantages

Evaporative coolers are less expensive and more energy efficient compared to refrigerant systems. Because Colorado is known for its dry atmosphere, many people enjoy the humid air produced by evaporative coolers. The systems are simple, which means that homeowners usually perform their own maintenance.

Disadvantages

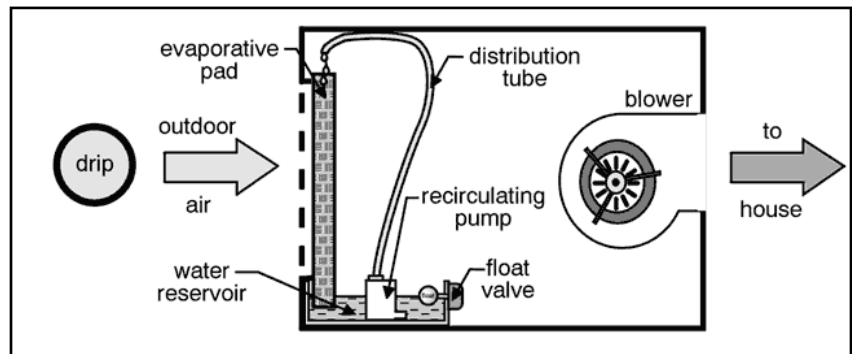
Evaporative coolers only work in warm arid climates like Denver's. They humidify the air, which is not appealing to some people, though in very dry places humidity is welcomed. Because evaporative coolers rely on the use of a constantly wet pad, mold and bacterial growth can be a concern. Many systems do not use ducts so the cool air distribution to the home can be uneven. Roof penetrations must be installed properly so they do not cause leaks in the roofing system.

Maintenance

During the off-season, the unit should be drained and water turned off. Most people also cover the units. The opening to the home should be sealed. During operating months, pads should be regularly cleaned and/or replaced per the manufacturer's instructions. The water reservoir should be periodically drained and brushed out with vinegar-water and/or bleach-water solutions.

Lifespan – Depends greatly on maintenance. 5 to 15 years.

Replacement Cost - \$400 to \$1000



EVAPORATIVE COOLER – DRIP STYLE



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