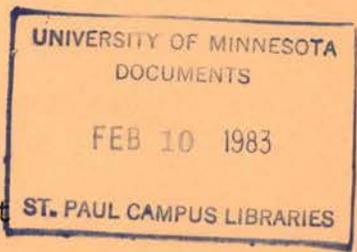


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(TAPE #504)

Dial-U-TELETIP Script
"AIR-TO-AIR HEAT EXCHANGERS"
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In a tightly weatherized home, natural air leaks may not be adequate to bring in enough fresh air. Many new homes, especially in Canada, are intentionally being designed and built with almost no drafts or leaks. The design includes an "air-to-air heat exchanger" system installed as the house is built. The exchanger system uses humidity in the home to preheat fresh air. The humid air is drawn from bathrooms and the kitchen, through ducts leading to an insulated box. Within the box, dozens of metal plates are lined up with a small gap between. Humid air is pulled through the gaps, by a fan exhaust to the outdoors. The warm humid air heats the metal plates, which in turn add warmth to fresh air moving between opposing gaps in the metal. As the humidity is condensed into liquid water, further energy is transferred through the metal plates to the fresh air.

For each gallon of liquid water recycled from humid air, over 10,000 BTU of useful heat is added to the fresh air. The liquid water is automatically disposed of with a drain line.

Air exchangers can be added to older homes, but some remodelling may be needed to install the humidity pickups. The humid air should be drawn from a vent located high in a wall near the shower, and a wall near the kitchen sink. Ceiling vents are not recommended, since they are difficult

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to install without leaks into unheated space.

A fully-equipped system will include a humidistat, which signals the air exchanger to run at full speed whenever the home humidity goes above a desired level. For example, during very cold weather, the exchanger can be set at 30 percent relative humidity, to prevent condensation on windows.

A fully-equipped system will also have an adjustable low speed, to provide a desired level of continuous fresh air supply, and a manual high speed switch to use when extra ventilation is needed. A typical low speed setting is about 50 cubic-feet-per-minute, with a high speed of up to 250 CFM. Ductwork must be designed to provide adequate flow in and out of the exchanger.

Design of the exchanger itself varies by manufacturer. In some models, hard plastic sheets take the place of metal as a heat exchange surface. A cross-flow pattern of air movement, with humid air and fresh air moving at a 90 degree direction from each other, is common. Look for solid construction and quiet operation.

Wiring, ductwork, and water drains should be installed in accordance with local building codes. Installation by a qualified heating-ventilating contractor may be advisable. A list of suppliers of heat exchangers and further reading material is available from your county extension office. Look in the white pages of the phonebook, under your county name.

In general, only houses which have been professionally sealed will be tight enough to receive the full benefit of an air exchanger. If your home

has high humidity but does not seem to have a problem with indoor pollutants, such as smoke or odors, you may not need an air exchanger.

For information on humidity control by other methods, ask for TELETIP # 503, "Humidity in Minnesota Homes".

(TAPE #505)

Dial-U-TELETIP Script

Attic Ventilation

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11-8-82

Attic ventilation is important both summer and winter. In summer, ventilation through the attic will keep your ceilings cooler. Your house will be more comfortable, particularly for sleeping at night. If you have an air conditioner, it will not have to work as hard.

In winter, ventilation is needed to prevent moisture or frost buildup inside your attic. The first step, however, is to find the places where humid indoor air may be seeping up to the attic. Visualize your house as a balloon that holds warmth and moisture, versus outside air which is cold and dry. A hole in the bubble will allow heat and moisture to escape. Since warm air rises, there is a tendency for moisture to be carried with it into the attic.

Some people say that you need to allow moisture to escape. This may be true, but do not let it go to the attic. There are much better ways to relieve excess humidity, such as with exhaust fans ducted through the roof or outside walls, and venting your clothes dryer to the outside. In no case should an appliance be vented into the attic. It also helps to control the sources of moisture, such as installing a shower enclosure and door, covering pans when cooking, and opening a window when washing floors.