

# As Warm Weather Arrives, What Are the Different Ways to Cool a Home?

I'm not in the heating, ventilating and air conditioning (HVAC) business but I do have a pretty good understanding of the different methods of cooling a home, so I thought I'd review them this week. I welcome input from HVAC experts, so maybe I'll have an update/correction for you next week.

The most widely adopted method of cooling — what everyone calls "air conditioning" — involves a compressor-based system of refrigeration using the same technology as your kitchen refrigerator. A refrigerant (formerly Freon, before it was outlawed by the EPA) circulates within tubing from inside the home to outside and back again, absorbing and releasing heat in the process. Outdoors, the refrigerant cools and then re-enters the home, and the cycle repeats.

In a typical installation, the chiller (or "evaporator") is positioned within a forced air furnace which functions as the air handler to move household air across the coils containing the refrigerant. As the refrigerant cools the air, it absorbs heat and then flows to the outdoor compressor where the refrigerant is forced back into its chilled state, releasing that heat to the outdoors. This is similar to your kitchen refrigerator, except that your refrigerator releases the heat into the kitchen (behind the refrigerator) instead of outdoors.

In homes without a forced air furnace, the A/C system requires its own air handler to take in air from the house, chill it, then distribute it, usually via its own ductwork. One such application would be a home with hot water heat and, thus, no ductwork that could be used for air conditioning. In such a home, the A/C compressor might be roof-mounted, with the air handler and ductwork located in the attic. Some ducts distribute the chilled air to one or more rooms, while other ductwork returns air to the air handler. The cooled air will naturally settle downward, cooling lower floor(s) without ductwork.

A/C compressors, however, require a lot of elec-

## Hardwood Floors Are Popular, But Some Condo Owners Have Second Thoughts

A client of mine fell in love with a condo, in part because of its hardwood flooring. But within weeks of moving in, he's now thinking of selling. Why? Because the hardwood flooring in the unit above him appears overly effective at transmitting the sound of both human and canine footfalls. Apparently the neighbor below him has noticed the same thing and has complained about the sound my client makes when he and his dog move about on their hardwood floors.

This raises an interesting question: Is there a reasonable way to construct a building's floors so as to mitigate the transmission of sound from hardwood flooring?

tricity, making this the most expensive method of cooling. In a dry climate like Colorado, an economical option is evaporative cooling. It requires no compressor, just a fan, a membrane through which to pass water and a water pump. You may know this as "swamp cooling."

If you've noticed how even a slight breeze cools you off when you're sweating you've experienced evaporative cooling. Water, it turns out, is a good refrigerant, absorbing heat as it evaporates, but it can only evaporate effectively when the humidity is low. That's why you don't hear of evaporative cooling being used in Houston, New York, or any other locale where high humidity makes it harder for air to absorb additional water through evaporation.

A swamp cooler, which is usually roof or window mounted, draws in hot outdoor air and passes it through a water-saturated membrane. It then directs that cooled air into the house. For a swamp cooler to be effective, one or more windows have to be opened a few inches to allow air to escape, because, unlike with a compressor-based air conditioner, the swamp cooler is pumping air into the house instead of circulating air that is already in the house. If leaving windows open makes you feel insecure, there are ways to secure a window so that it is open the optimal four inches but can't be opened any further.

On the negative side, an evaporative cooler requires more maintenance than standard A/C and uses lots of water. Those membranes absorb dirt and dust and need to be rinsed or replaced twice a sea-

son or more, which can be tricky when the unit is roof-mounted. Also, you have to winterize and de-winterize the outdoor units. On the positive side, it is healthier for you (and your wood furniture) to live with the 30% or higher humidity created through evaporative cooling than the 10% or lower humidity created by air conditioning.

A whole house fan is a great complement to either method of cooling. Before turning on the A/C or swamp cooler when returning to a very hot house, you can use a whole house fan to quickly flush that heat out of your house by leaving a lower door or window open and turning on the whole house fan located in your uppermost ceiling, such as a second floor hallway. You might also use the whole house fan (on a low setting) at night instead of air conditioning when the outside temperature is below, say, 65 degrees, leaving a window cracked to bring in that cool, fresh air.

A third method of cooling is the heat pump or mini-split system. We installed such a system at Golden Real Estate, which I described in detail in my January 4th column. You can find that column online at [www.JimSmithColumns.com](http://www.JimSmithColumns.com).

Mini-split systems combine the low maintenance of a compressor-based air conditioning system with the energy savings of a swamp cooler (but without the swamp cooler's water consumption). Like A/C compressors, mini-splits have SEER ratings but, whereas high-efficiency A/C systems have SEER ratings under 20 at most, you can find mini-splits with SEER ratings of 30 or higher. And a mini-split also functions as a ductless heating system during cold weather.

### REAL ESTATE TODAY



By JIM SMITH, Realtor®

## Lakewood Townhome Just Listed by Andrew Lesko



Located at 10456 W. Dartmouth Ave. in the highly sought-after townhome community of Pheasant Creek, this is a great opportunity for first-time home buyers! Bring your design ideas and make this home yours. This is currently the lowest priced Lakewood townhome with a garage! Features include a main-level living room with wood burning fireplace, dining area and a smart kitchen space that accesses the deck -- great for summertime BBQ's! Two spacious bedrooms upstairs share a full bath. The basement has an 80-sq.ft. unfinished room behind the garage with included washer and dryer (and furnace and water heater). This townhome is move-in ready. Community amenities include a pool and basketball court. Close to trails, parks, restaurants and shopping. This is a great starter home in a great location and is priced to sell quickly! View the narrated video tour online at [www.LakewoodTownhome.info](http://www.LakewoodTownhome.info), then call your agent or Andrew Lesko at 720-710-1000 for a private showing. He'll be holding an open house on Saturday, May 5th, 11am to 3pm. See also [www.GoldenTownhomes.com](http://www.GoldenTownhomes.com).



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