Keeping Cool at Home
Part 2

In my previous article, I discussed some ways to keep cool at home in Sacramento's sometimes "blistering" heat. Approaches such as using window shade screens to block the heat before it hits the glass, using a whole house fan to ventilate your home, and keeping interior doors closed all work well in Sacramento to "beat the heat."

Below are some additional ways to increase your comfort at home during those days when the temperature soars:

Reflect. Light colors reflect heat, dark colors absorb it. If you have a low pitched roof with minimal street visibility, coloring it with a white or reflective coating can provide a major benefit. Also, selecting light colors for exterior walls can help.

Evaporate. Due to our low relative humidity, we can achieve major benefits from evaporative cooling. The old swamp coolers provided an interior that was a bit too clammy for our current tastes, but the same effects can be achieved with a fine mist of air in outdoor spaces. There are more sophisticated evaporative cooling technologies that our office has utilized, such as direct/indirect dual stage evaporative cooling where air is cooled through a heat exchanger which in turn is cooled with the moist, evaporative cooled air.

Also, we have had limited success with roof top water sprays which are a somewhat experimental approach. In my office, I use an evaporative spray mister connected to a thermostatic control to reduce the head pressure and temperature of a rooftop air conditioner, increasing its capacity by about 20%. For those with a technical bent and a willingness to experiment, there is a lot of fertile ground here to explore.

Refrigerate. When we are in the middle of a heat wave and night-time temperatures don't drop much below 80 degrees, while soaring well into the triple digits during the day, there's not much you can do but run an air conditioner. It can help if you turn on your whole house fan for a brief period before firing up the air conditioner because it will greatly reduce the air temperature in the attic (from as much as 150 degrees down to 120 degrees). This, in turn, will reduce direct gain from ceilings, as well as the heat gain from any duct work that runs through the attic. In the past, air conditioners were greatly oversized, giving them a large pick-up capability. This meant that you could let your house get 100 degrees inside, then turn on an oversized compressor and quickly chill things down. That same compressor, however, is very inefficient to operate during normal loads, and thus, revisions in the energy codes have prohibited over sizing.

In your new home or your recently updated older home, your air conditioner, if it is properly sized per state code, will *not* have adequate capacity to reduce the temperature except by a few degrees per hour. During the hottest days, it *won't have the power to cool down an over-heated house*, (although it will be capable of *maintaining* an *existing* temperature of about 78 degrees). The only answer is to have your air conditioner run constantly during a heat spell. Ironically, the small sizes mandated by current code result in the use of a lot more energy for some of us because they force us to run the air conditioner more than we want!

Tighten up. Make sure your system is operating efficiently to get the most for your money in comfort. The biggest problem faced by most heating and cooling systems is dirty air filters. When filters are caked with dirt, you're spending a lot of money

trying to

push more air through them and contaminating that air in the process. Look into high efficiency filters, or electronic filtration, particularly if you suffer from allergies or respiratory problems. Also, make sure the duct work is properly done. Duct tape is, in my opinion, often a temporary solution to sealing.

More than once in an attic or crawl space I've been "treated" to air conditioning by leaky duct work or even duct work completely disconnected. This waste could go on for years with you unaware, so it's not a bad idea to have a checkup of your system once every two years by a competent HVAC contractor.

Hopefully, these approaches will help you "beat the heat" in Sacramento!