



Your Attic Fan's Dirty Little Secret

I've been finding a large percentage of the homes I do energy audits for have attic fans. The conventional wisdom seems to be that they're useful. But are they?

You would think an attic fan, in reducing the attic temperature, would reduce your air conditioning load, right? So, like most people, you go to the hardware store to buy that fan, cuss a lot because you can't find all the right tools you need to install it, cuss even more because the attic is not only cramped but hot as Haiti, then pay PG&E every summer to run your fan. Was it worth it? Unfortunately, no, it probably wasn't worth all that trouble.

Studies of attic fans have found that the energy consumption associated with the motor is greater than the air conditioning energy savings. The only case where an attic fan might be worthwhile for cooling savings is in attics with no insulation. But that's the bad news. The good news is there are far more cost-effective solutions than attic fans:

- 1) Increase your attic insulation to R-38. This is generally your most cost-effective option. Before blowing in insulation, however, have a professional seal leaks in areas like electrical/plumbing penetrations in the ceiling (behind fixtures) and other leakage points. Do the same with your ducts if they're in the attic. It's crucial to get things tidied up before the insulation is blown in, because you don't want it to be trampled down later!
- 2) In tall attics with flooring and very little insulation underneath (fairly common around here) your best bet might be to install a truss-mounted radiant barrier (applications of radiant barrier to an attic floor is not recommended). A ridge vent should be used to let the heat ventilate out from between the radiant barrier and the roof sheathing.
- 3) If it's a flat or "low-sloped" roof, use a white reflective roof surface. It can dramatically reduce solar heat gain into the attic structure. My favorite experience on a roof was in Stockton on a 105 degree day. Any building manager, HVAC contractor, or roofer will tell you "do not walk on the roof when it's hot outside – you're foot will sink into the hot asphalt!" Not on a white roof. I took off my shoes and walked around comfortably – it didn't feel much warmer than the outside air. I measured other roofs in the area and they ranged between 150 to 170 degrees!

It's worth pointing out that there are other reasons for ventilating your attic - like controlling moisture. But there are a variety of ridge, gable and other styles of natural ventilation openings that are useful for this purpose. And besides, the attic fan control is typically a thermostat set at 90 degrees or above, so

it's not even on in the winter when moisture buildup is most problematic.

Next week we'll take a look at a fan I can really recommend

Ray Darby is President of Sustainable Energy Group Inc., a Grass Valley company offering energy efficiency and solar services for residential and commercial buildings, from comparing the alternatives through installation and servicing of energy systems of all types. You can reach him at 530-273-4422, via email RayDarby@SustainableEnergyGroup.com, or visit their web site at www.SustainableEnergyGroup.com.

