

Money-Saving Whole House Fans: A Quick Guide for Homeowners

A **home performance upgrade** makes your home more comfortable while helping reduce your energy bills. An upgrade prevents air and energy leaks and ensures that heating and cooling equipment is efficient, that ducts are free of leaks, and that your water heater and other home appliances are working efficiently. Among the many efficiency options to consider is the whole house fan. This quick guide explains the basics of whole house fans; information in the fact sheet was provided by the SMUD Heating/Cooling Rebate program.

COOL YOUR HOME USING ABOUT 10% OF THE ENERGY YOUR AIR CONDITIONER USES!

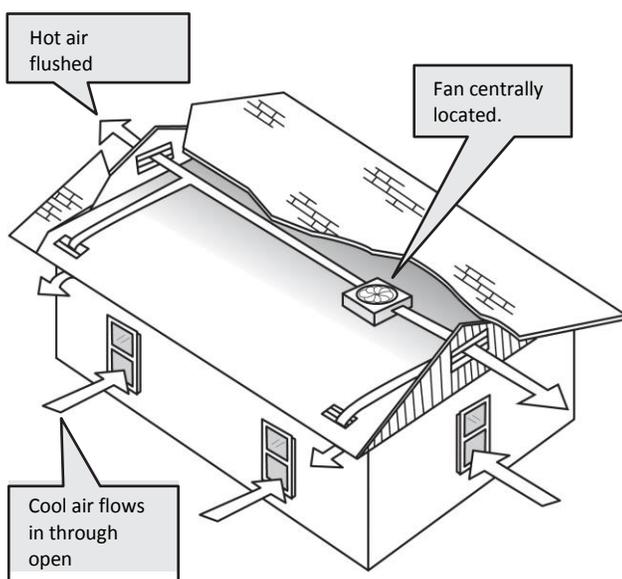
In the summer, the air inside your home is heated during the hot part of the day. In the morning or late evening, the outside air is frequently cooler than the air inside your home. This is the best time to open screened windows and doors and operate a whole house fan.

WHY USE A WHOLE HOUSE FAN?

A whole house fan is a simple and inexpensive method of cooling a house. The fan draws cool outdoor air inside through open windows and exhausts hot room air through the attic to the outside. The result is excellent ventilation, lower indoor temperatures, and improved evaporative cooling.

AN OLD IDEA WHOSE TIME HAS COME

Before there was air conditioning, homes were kept cool by Mother Nature. Shade trees, roof overhangs, and the home orientation all played an important role in maintaining a home's livability during hot months. Whole house fans were often used to replace hot, stale inside air with cooler outside evening air drawn through open windows and doors. But with the advent of air conditioning systems, these low-cost cooling methods were gradually reduced to secondary strategies. Now with rising energy costs, consumers are taking a second look at measures like whole house fans to reduce energy costs.



ADVANTAGES OF WHOLE HOUSE FANS

A whole house fan can be used to reduce the need for air conditioning. Outside air temperature and humidity dictate times when the whole house fan would be favorable over air conditioning. If both methods of cooling are present, a seasonal use of the whole house fan (during spring and fall) may yield the optimum combination of comfort and cost.

Cooling Strategies

- **Morning pre-cool.** Run a whole house fan in early morning to pre-cool furnishings and interior surfaces. Before the temperature rises, turn off the whole house fan and close all windows and doors to trap the cool air in your home. This will delay the operation of your cooling system.
- **Evening cool-down.** Operating your whole house fan when the outside temperature drops below the indoor temperature will cause cooling. This will reduce your air conditioner's run time, saving energy and money.

Whole house fans are effective only when outside temperatures are lower than inside temperatures. They yield best results when the outside temperature is below 80 degrees. In Sacramento, where the air is dry and delta breezes dramatically lower evening temperatures, whole house fans are an effective home cooling solution.

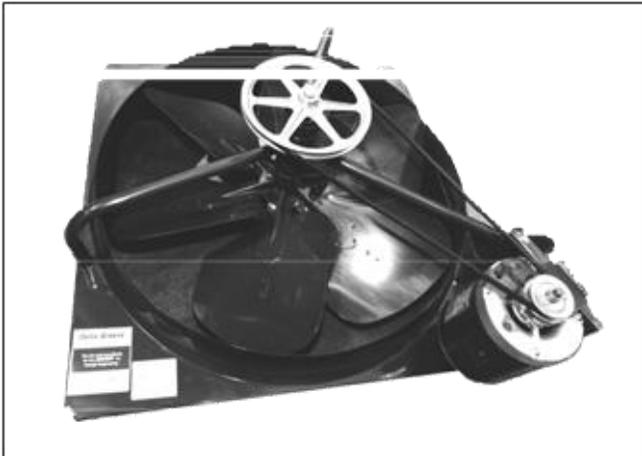
Depending upon your specific circumstances, you may discover that a whole house fan can serve as your primary home cooling solution, letting you save your air conditioner for only the very hottest days when outside air temperatures remain high.

SELECTING A WHOLE HOUSE FAN

Choosing the whole house fan that's right for you will depend upon your needs, and the features you prefer. Whole house fans are characterized most often according to the volume of air they replace in cubic feet per minute (CFM), and by their drive mechanisms—direct drive or belt drive.

A fan properly sized for your home can make a complete air exchange in about 2-3 minutes. Five to ten air exchanges will cool not just the air, but the walls and furnishings as well. Interior surfaces contribute to heat buildup by absorbing heat throughout the day, and releasing it at night. Running a whole house fan for about 20 minutes will cool these things sufficiently to make your home comfortable.

Most standard whole house fans move between 2,500 and 6,800 CFM of air, depending upon such factors as fan blade size, opening size, and available net free venting. Certain new models move only about 1,000 CFM, but offer better insulation in the off-season when they are not in use. And while smaller fans do not create the breeze effect inside the home that many people like about larger fans, they do require less energy to operate, as well as less net free venting. Ask your contractor about advantages and disadvantages of both standard and compact whole house fans.



To determine the volume of your home in cubic feet, take the floor area in square feet, and multiply that by the height of your ceilings. For example, an 1,800 square foot home with an 8 foot ceiling height has a volume of 14,400 cubic feet. If you wish to replace that volume of air in, say, three minutes, you would require a whole house fan rated at 4,800 CFM. A higher CFM rated fan will replace the air in less than three minutes, while a lower CFM rated fan will replace the air in more than three minutes.

FEATURES

Most fans are available with the following options:

- Wall-mounted controls
- Two speed/variable speeds
- Belt or direct drive
- Horizontal or vertical mount
- Insulated louver covers (during winter when fan is not in use)

Consider a fan with at least a high and low speed. The high speed can be used for flushing the initial heat build-up from the home, and the low speed may be used for gentle air circulation and continued cooling. A belt-driven fan is generally quieter than a higher RPM direct-drive unit, but will require periodic maintenance of the belt and pulley assembly.

A SMART INVESTMENT

Whole house fans are inexpensive, even when professionally installed. They usually pay for themselves in a few short seasons. For cost-effective cooling, they're hard to beat.

Your SMUD Home Performance Program contractor will ensure the fan is installed according to best practices that avoid back-drafting combustion appliances that are present in the conditioned space. (It is strongly recommended that combustion such as gas stoves and gas water heaters appliances NOT be installed in such a manner that they use interior room air for combustion.) The whole house fan is capable of pulling large quantities of air from the home and therefore should never be operated without opening the appropriate number of windows and/or doors to ensure sufficient incoming air for efficient and safe operation.

THE SMUD HOME PERFORMANCE PROGRAM

How do I choose a qualified contractor?

SMUD provides a list of Home Performance Program contractors at www.smud.org (Click: Residential > Save Energy & Money > Rebates, Incentives, & Financing > HPP Contractor List). All contractors on this list are qualified to earn energy upgrade rebates for your home.

Receive a \$150 HPP Rebate!

SMUD residential customers may qualify for a \$150 rebate through the Home Performance Program for the installation of a whole house fan in their home (limited to one rebate per residence). The whole house fan must be purchased for permanent installation in a residence receiving SMUD electric service and must move at least 1,000 cubic feet of air per minute (CFM). Rebates are subject to change and/or discontinuation. SMUD reserves the right to inspect installation premises or request additional information or documentation prior to rebate payment.

FOR MORE INFORMATION

For more information about energy efficiency incentives available through SMUD, visit: <http://www.smud.org/> (Click: Residential > Save Energy & Money > Rebates, Incentives, & Financing > Home Performance Program) or contact james.mills@smud.org / 916-732-6798.

Contractors:

Staple your business card here