Low-Cost Cooling Options

BY PAUL MCRANDLE
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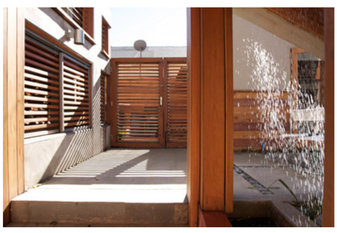
How to chill comfortably and cut costs: Follow our 11-step plan to AC-free cooling.



The Levine home in Southern California exemplifies passive cooling, with a "rain curtain" (right) fed by a storm water collection system that cools downstairs air via evaporation and recirculates in a fountain. Slatted sun panels (left) can be closed during the day to reduce heat. **Jeremy Levine Design/Flickr**

A quick look at your summer electric bill will confirm that cooling your home is expensive. In fact, according to the EPA, air conditioning accounts for 21 percent of annual home electricity consumption, at an average cost of $239 year. Per household, that results in 1.5 tons of carbon dioxide emissions from AC alone. But by following these steps, you can save at least $494 a year and .95 tons of CO2 -- even more if you upgrade your AC or replace it with a ceiling fan.

PLAN

1) Tell your A/C what to do: A programmable thermostat lets you save money by not cooling your house when you're not around to enjoy it. Set the temperature at 80°F when you know you'll be away and set it at least 2 degrees higher than you would normally -- a shift from 72°F to 74°F in the summer will save 366 pounds of CO2 a year and $28.56 on your annual energy bill.

2) Seal, weatherstrip, and insulate your home to keep hot air out and cold air in. As recommended in the NRDC Simple Steps CO2 Smackdown series, weather stripping and caulking doors, windows, and any cracks or openings and walls will save about 225 pounds of CO2 and $17.71 from AC use in the summer.

It is also important to insulate around window air conditioners, which can lose cool air to the outside, particularly if the unit has extended plastic "wings" to fill in the window frame. Insulating kits for window air conditioners are available at hardware stores for approximately $10.

Remember to clean or check the conditioner filter once a month; any buildup will restrict airflow and make it less efficient.

3) Seal and wrap your ducts: The ductwork that conveys your cool air from the HVAC to the rest of your house may be leaking air and losing efficiency. This can result in a 10 percent "leaky duct fee" on your power bill. Get your ducts professionally sealed and make sure they have been insulated properly. If possible, have your ducts moved inside the air-conditioned space. You may save 305 pounds of CO2 a year and $23.82 on your energy bill annually.

4) Windows: After weatherstripping your windows, consider adding low-emissive film to the panes to reduce solar gain. This will allow you to reduce the heat entering your home for a fraction of the cost of replacing your windows. If you decide to invest in new windows, seek out the lowest available U-factor, which measures how much heat can escape, and the lowest solar heat gain coefficient (SHGC), which measures how much heat from sunlight is transmitted through a window. A 30 percent federal tax credit is available for windows with U-factors and SHGCs of 0.30 or less each. SHGC is most important in sunny climates and on the sunny side of your home.

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5) Start cooling from the outside: Awnings, shutters, and overhangs will provide a good defense against the summer sun, but you may also use trees and tall bushes to beautify your view and reduce the sunlight entering your windows.

6) Close the blinds: Shutting curtains, shades, or blinds on the sunny side of the house can make a big difference. Blinder venetian shades with highly reflective light colors in particular can reduce heat build-up in your home.

7) Let in fresh air: When it's not too hot out, pull in cool air by cracking open lower-story windows just 1 or 2 inches, and place portable and window-mounted fans in upstairs windows facing outward to remove the air that rises due to convection in your home. This will create a stronger draft throughout the house that will keep the air cool without the use of AC.

8) Install ceiling fans: Fans use 10 percent of the energy consumed by AC and can make a room feel 10 degrees cooler. They are even relatively easy to install yourself, as shown in NRDC Simple Steps' DIY installation article. Replacing your AC with ceiling fans could save you up to $215 and 1.35 tons of CO2 annually.

9) Install an attic fan: Whole house fans that remove hot air from throughout the house only provide substantial relief at night and in low humidity. A cheaper option is an attic fan that can save up to 10 percent on AC costs -- that's $24 and 300 pounds of CO2 annually.

10) Upgrade your AC: Whether you're using central air or window-mounted AC, if your cooling system is several years old, you can most likely save on your energy bill by upgrading to new, more efficient models. The most efficient models use inverter technology that also makes them very quiet. Thirty percent tax credits are available for units 16 SEER and better. Depending on the age of your current unit, Energy Star-rated air conditioning could save you 10 percent to 30 percent of your cooling costs, or up to $71.52 and 916 lbs of CO2 annually.

REDUCING COSTS

11) For Federal tax incentives, see the Tax Incentives Assistance Project for information about the limits on energy efficient home improvements. For a listing of state incentives, visit the Alliance to Save Energy. Be sure to check out the Department of Energy's "5 Things You Should Know Before You Claim Your Energy Tax Credit," which points out that installation costs for insulation cannot be claimed when determining your tax credit.

Depending on your income, you may qualify for free weatherization services through the Weatherization Assistance Program. This service is also available to renters.

ALTERNATIVES

Consider an evaporative cooler if you live in a dry, hot climate. Evaporative coolers (also known as "swamp coolers") draw outside the air over wet pads thereby cooling it. Although they only work in dry climates, evaporative coolers consume 75 percent less energy than conventional AC and can reduce indoor temperatures by almost 30°F. This could save you $179 and 1.15 tons of CO2 annually.

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