

# Natural House Cooling Tips

You can reduce energy bills and lower the use of an air conditioner by implementing "natural conditioning" or "passive cooling" in your home. Besides saving money the goal is also to reduce our impact on the environment.

All homes contain sources of heat within their building called internal heat gain, and they combine to heat up your house. Common sources include appliances, electronic devices, and lights. Even small transformers for answering machines produce a small amount of waste heat. While much is written for cooling a home by tapping into natural forces such as cool breezes, shade, and cool nighttime air, paying attention to internal heat gain often is glossed over. But it is important!

Dramatically reduce your internal heat gain in your home using these 11 tips:

Home designers group passive cooling measures in four general categories:

(1) reducing internal heat gain, (2) reducing external heat gain, (3) purging built-up heat, and (4) cooling people directly.

## Reducing Internal Heat Gain

The most significant sources of heat include conventional stoves and ovens, cloth dryers, dishwashers, water heaters, conventional incandescent lights, aquarium lights and heaters, television sets, electric iron and computers. In the summer internal heat sources become a liability.

Using the following chart's blueprint, make a list of all the appliances, electronic devices, and lights in your home. Problem solve about how to use each one less. As you work through the list, you will find that most heat-reducing solutions are fairly easy and inexpensive.

Here is a list of internal heat gain with cheap and more costly solutions.

Heat Source: Incandescent lights

Contribution to Internal Heat Gain: Major

Cheap Option: Use lights more sparingly. Turn lights off when not in use.

More Costly Option: Replace with compact fluorescents. Install occupancy sensors.

Heat Source: Water heater

Contribution to Internal Heat Gain: Major

Cheap Option: Turn temperature down to 48 °C. Install insulation: water heater blanket. Insulate hot water pipes.

More Costly Option: Replace old models with on-demand (tank-less) water heaters.

Heat Source: Stove and oven

Contribution to Internal Heat Gain: Major

Cheap Option: Eat more cold meals during the summer. Cook outside as much as possible. Use the microwave more during the summer. Bake at night.

More Costly Option: Replace old, worn-out gas stoves with models that have electronic ignition switches.

Heat Source: Clothes washer

Contribution to Internal Heat Gain: Minor

Cheap Option: Use the cold or warm water settings. Wash clothes at night.

More Costly Option: Replace with a more energy-efficient model.

Heat Source: Computer

Contribution to Internal Heat Gain: Minor

Cheap Option: Turn the computer off when not in use.

More Costly Option: Replace old, outdated computers with energy-efficient models with LCD Monitors.

Heat Source: Television

Contribution to Internal Heat Gain: Minor

Cheap Option: Watch TV more sparingly. Unplug TV when not in use. Plug TV into power strip and turn off when not in use.

More Costly Option: Purchase the most energy-efficient model possible, when buying a replacement TV set.

Heat Source: Shower

Contribution to Internal Heat Gain: Major

Cheap Option: Turn water heater temperature down. Take shorter showers. Open windows when showering. Run exhaust fan when showering. Replace showerhead with a more efficient model.

Heat Source: Dishwasher

Contribution to Internal Heat Gain: Major

Cheap Option: Hand-wash dishes. If it is not already off, switch off the drying option.

## More Tips for Keeping the House Cool

Puzzling out how to keep your house as cool as possible during these hot summer months? Trying to remember the conventional wisdom but not quite sure how it goes? Those window fans, for example, should they be placed to draw air in or out? Upwind or downwind of the dwelling? And what about windows, shades, and awnings? Are windows on the North side of the house better left closed or open during the day? Are awnings better than shades?

Efficient cooling saves money, energy, and the quality of our lives.

Tricks for keeping the house cool.

1. Reduce the cooling load by employing cost-effective conservation measures. Provide effective shade for east and west windows. When possible, delay heat-generating activities until evening on hot days.
2. Over most of the summer season, keep the house closed tight during the day. Don't let in unwanted heat and humidity. Ventilate at night either naturally or with fans.
3. You can help get rid of unwanted heat through ventilation if the temperature of the incoming air is 25 °C or lower. (This strategy works most effectively at night and on cooler days.) Window fans for ventilation are a good option if used properly. They should be located on the downwind side of the house facing out. A window should be open in each room. Interior doors must remain open to allow air flow.
4. Use ceiling fans to increase comfort levels at higher thermostat settings. The standard human comfort range for light clothing in the summer is between 22 °C and 25 °C.
5. In hot climates, plant shade trees around the house.
6. If you have an older air conditioner, consider replacing with a modern, high-efficiency unit. Make sure that it is properly matched to the room dimensions.
7. If buying a new air conditioner, be sure that it is properly sized. Get assistance from an energy auditor or air conditioning contractor.
8. Buy a high-efficiency BEE Energy Star Labeled air conditioner
9. In hot, humid climates, make sure that the air conditioner you buy will adequately get rid of high humidity. Models with variable or multi-speed blowers are generally best. Try to keep moisture sources out of the house.
10. Try not to use a dehumidifier at the same time your air conditioner is operating. The dehumidifier will increase the cooling load and force the air conditioner to work harder.
11. Seal all air conditioner ducts, and insulate ducts that run through unheated basements, crawl spaces, and attics.
12. Keep the thermostat set at 25°C or higher if using ceiling fans. Don't air-condition unused rooms.
13. Maintain your air conditioners properly to maximize efficiency.

### Additional tips .

Warm Weather Window Solutions

14. Install white window shades or mini-blinds. Mini-blinds can reduce solar heat gain by 40-50 percent.
15. Close south and west-facing curtains during the day for any window that gets direct sunlight. Keep these windows closed, too.
16. Install sunshade on south-facing windows, where there's insufficient roof overhang to provide shade.

17. Hang tightly woven screens or bamboo shades outside the window during the summer to stop 60 to 80 percent of the sun's heat from getting to the windows.

18. Apply Sun Control Films on window glasses

19. Consider exotic in fills in your windows, a new technology that fills the space between panes with krypton or argon, gasses that have lower conductivity than air, and which boost R-values.

### **Additional Tips for your A/C**

Buy/Use Air conditioners with BEE Star Energy Ratings

Provide shade for your room A/C, or the outside half of your central A/C if at all possible. This will increase the unit's efficiency by 5 percent to 10 percent.

Clean your A/C's air filter every month during cooling season. Normal dust build-up can reduce air flow by 1 percent per week.

Turn off your A/C when you leave for more than an hour.

Several studies have found that most central air conditioning systems are oversized by 50 percent or more.