

## HOW TO KEEP YOUR HOME COOL ALL SUMMER LONG

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 such as dishwashing until evening on hot days.
2. Over most of the cooling 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 77 F 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 72 F and 78 F. To extend the comfort range to 82 F, you need a breeze of about 2.5 ft/sec or 1.7 mph. A slow-turning ceiling-mounted paddle fan can easily provide this air flow.
5. In hot climates, plant shade trees around the house. Don't plant trees on the South if you want to benefit from passive solar heating in the winter.
6. If you have an older central air conditioner, consider replacing the outdoor compressor with a modern, high-efficiency unit. Make sure that it is properly matched to the indoor unit.
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 air conditioner: for room air conditioners, the energy efficiency ratio (EER) rating should be above 10; for central air conditioners, look for a seasonal energy efficiency ratio (SEER) rating above 12.
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 78 degrees F or higher if using ceiling fans. Don't air-condition unused rooms.
13. Maintain your air conditioners properly to maximize efficiency.

### 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 awnings 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 low-e films.
19. Consider exotic infills 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.

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

19. 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.
20. 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.
22. Turn off your A/C when you leave for more than an hour.
23. Several studies have found that most central air conditioning systems are oversized by 50 percent or more.

As the temperature rises, so does the cost of **cooling your home**, especially if you use an air conditioner. Obviously, the best way to **keep your home cool** during the summer is to use an air conditioner to keep the temperature down, but there are other options that don't raise your energy bill quite significantly. Air conditioners may offer tempting temporary relief from summer heat, but they're a huge environmental no-no. You may be cooling your home, but the fossil fuels you're burning in the process are only making your summers hotter. This summer, leave the air conditioner in storage and try these environmentally-friendly alternatives instead. Fundamentally, the idea is to minimize sources of heat and remove built-up heat from inside.

### **Fans and Ceiling Fans**

- If you're looking for ways to beat the heat, a ceiling fan can be a great investment for your home. This one appliance can make a room feel 6 or 7 degrees cooler, and even the most power-hungry fan costs less than \$10 a month to use if you keep it on for 12 hours a day. Good fans make it possible for you to raise your thermostat setting and save on air-conditioning costs. Fans don't use much energy, but when air is circulating, it feels much cooler. Ceiling fans are best, but a good portable fan can be very effective as well.
  - You should remember that even mild air movement of 1 mph can make you feel three or four degrees cooler. Also make sure your ceiling fan is turned for summer – you should feel the air blown downward.
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### **Shades, drapes, or blinds**

- Install white window shades, drapes, or blinds to reflect heat away from the house. Close blinds, shades and draperies facing the sun (east-facing windows in the morning and west-facing windows in the afternoon) to keep the sun's heat out and help fans or air conditioners cool more efficiently. Always remember that the best way to keep your home cool is to keep the heat out.
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### **Internal Heat**

- The most common sources of internal heat gain are; appliances, electronic devices, and lighting. Be aware from where the heat is coming. Now if you have air conditioning, use it wisely. Don't put lamps, televisions or other heat-generating appliances next to your air-conditioning thermostat, because the heat from these appliances will cause the air conditioner to run longer. The heat they produce will make it think your house is warmer than it really is, and your system will run harder than it needs to.
  - Unless you absolutely need them, turn off incandescent lights and heat-generating appliances. Replace incandescent bulbs with compact fluorescents; they produce the same light but use a fifth the energy and heat.
  - You should also try to avoid heat-generating activities, such as cooking, on hot days or during the hottest part of the day. If you are cooking, use your range fan to vent the hot air out of your house. By reducing the amount of heat in your home, you will have to use less energy to cool it.
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### **Plants**

- Plant trees or shrubs to shade air conditioning units, but not block the airflow. A unit operating in the shade uses less electricity. Deciduous trees planted on the south and west sides will keep your house cool in the summer and allow the sunlight to warm the house during the winter. For example just three trees, properly placed around a house, can save between \$100 and \$250 annually in cooling and heating costs, and daytime air temperatures can be 3 degrees to 6 degrees cooler in tree-shaded neighborhoods.
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### **Roof and Walls**

- Paint your roof white – If you’ve got a flat roof, paint it with a specially formulated reflective paint or just paint it white. The reflective effect will help to keep the rooms under the flat roof much cooler.
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### **Other things to remember**

- Humidity makes room air feel warmer, so reduce indoor humidity. Minimize mid-day washing and drying clothes, showering, and cooking. And when you must do these things, turn on ventilating fans to help extract warm, moist air.
  - Avoid landscaping with lots of unshaded rock, cement, or asphalt on the south or west sides because it increases the temperature around the house and radiates heat to the house after the sun has set.
  - If the attic isn’t already insulated or is under-insulated, insulate it NOW. Upgrading from 3 inches to 12 inches can cut cooling costs by 10 percent.
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### **1. Open Your Windows**

When the outside air is cooler than the inside, it’s foolish to keep using electricity for something nature can do for you instead. We have two separate indoor/outdoor thermometer setups (one for each floor of our house) so we know exactly when we reach that tipping point. When the temperature outside is starting to drop and has sunk at least one degree less than the inside temperature, we turn off the air conditioner and throw open the windows.

Nothing is more satisfying than getting a breeze of fresh air after having your home closed up all day.

### **2. Turn On the Ceiling Fans**

While a ceiling fan won’t make your room cooler, it will definitely make it *feel* cooler by speeding sweat evaporation and they cost far less to run than your air conditioner. If you don’t have ceiling fans already, they’re not very hard to install – I’ve added or rehung five in our house so far.

Once your fans are in, make sure the fan is set to spin in the correct direction: You want the air blowing down in summer and up in winter. If you’re not sure which way the air is moving, look at the blades as they spin: If the leading edge is higher than the trailing, it is pushing the air down. Honestly, we never turn our ceiling fans off whether we have the windows open or the air conditioner on. It’s nice to have air blowing over you and making you feel cooler.

### **3. Put In an Attic Fan**

We’re having a contractor friend come over soon and give us an estimate for installing an attic fan and a timer. When I was growing up, I loved it when we turned on the attic fan; the cool outside air rushing in the windows and the hum of the fan made sleeping very comfortable.

An attic fan gives you the combined benefits of moving air (like a ceiling fan) and pulling in the cooler air from outside. Of course, a prerequisite for running this is opening your windows, so the best thing is wait until after dusk to open your windows and then set the timer to run at least until after you’re deep asleep. It’s an investment that can easily pay for itself in a couple of years.

### **4. Shut the Blinds**

On hot summer days, the sun is your worst enemy. The last thing you want to do is have your air conditioner running full blast to offset the increase heat from the sunlight pouring in your windows. By closing the blinds, you'll still let in enough light to see by, but you'll reflect back the rest.

## **5. Run Your Furnace Fan**

Many thermostats will allow you to tell the fan to run without initiating the furnace or air conditioner. By turning on your furnace fan, you cause the air to be circulated throughout the house, balancing out any cold or hot spots so that you whole house feels more comfortable. An added benefit is that it will trap any potential allergens that have been introduced by opening your windows – just make sure to regularly check the furnace filter and replace it when it's dark enough to block light passing through.

## **6. Install a Programmable Thermostat**

It doesn't make much sense to cool your home while you're gone, but it's hard to remember to tweak your thermostat every day before you leave for work. Program your thermostat to go up by five degrees about 30 minutes or so before you leave and have it come back to your "normal" temperature a half-hour before you return. For added savings, program it to also raise the thermostat by two or three degrees through the night – you're unlikely to notice the change in your sleep.

## **7. Turn Up The Thermostat A Degree Or Two**

It's recommended that you set your thermostat at 78 degrees during the summer if you have central air conditioning. It's a pleasant temperature, but isn't necessarily the cheapest setting. If you can handle it, raise your thermostat by one or two degrees and realize a savings of about six to seven percent for each degree above 78.

## **8. Close Unused Vents**

I don't know about your house or apartment, but there are some infrequently-used rooms in our house. If you're not going to be in a particular room very much or very often, consider closing the vent in that room so you're not cooling dead space. That will cause more air to come out of the other open vents, potentially allowing you to add some cooling to a room that wasn't getting it otherwise.

Note: I wouldn't recommend completely shutting the vents in a basement since the air conditioner helps remove humidity and you don't want to end up with a soggy basement.

## **9. Turn Off the Lights**

This isn't really a suggested limited to summer, but it's most appropriate now that it's heating up. If you don't *need* a light on, turn it off! All light bulbs generate heat as a byproduct of producing light (even though compact fluorescents run cooler than incandescent) and why would you want to add heat to the summer mix?

What light is filtering in through your closed blinds should be sufficient to get you around the house during the day. When night falls, turn on only the lights you need only when you need them. Not only will you save electricity, but you'll also do your air conditioner a favor.

## **10. Hold Off On Cooking**

I love chicken salad. In the summer, there is no meal I like more – it can be eaten chilled, you don't have to cook anything, and it's quick to prepare. Any time you turn on that stove while your air conditioner is running, you're taking money out of your own pockets.

During the summer, do what you can to avoid turning on the stove and, if you must turn it on, turn it on in the late evening and (preferably) after you've opened the windows for the night.

### **11. Leave Laundry Until Nighttime**

Like a huge, spinning oven, your clothes dryer puts out a decent amount of heat. Much of that heat will be vented outside, but some will still leak into your house. The later you wait to turn it on, the better chance you have of not working against your air conditioner as much. If you live somewhere that has time-based metering of electricity, try to wait until the lower evening rate kicks in.

Of course, nothing beats line-drying in terms of electricity usage, but if your subdivision is like mine and bans outdoor clothes lines, running your dryer at night is the next best option.

### **12. Use Your Lowest Level**

When I go down to the basement to grab something out of our storage, I'm quick to notice that it's at least 10 degrees cooler down there than our first floor. And, likewise, when I go upstairs to put away laundry in the bedroom closet, I can see that it's five degrees warmer up there. I would love to spend most of our time in the basement, but we haven't yet scraped together the funds to finish it as a living space, so we're stuck on our main level. If you have a basement, don't hesitate to take advantage of its stable temperatures all year – I know we will be once we finish ours.

### **13. Unplug/Switch Off Unused Electronics**

Not only are those wall warts eating electricity when they're not in use, they're also converting some of that power into heat. By unplugging everything you can and putting the rest on switchable surge protectors, you can potentially save yourself a lot of money and unnecessary heat.

### **Bonus: Turn Off the TV**

I don't know about you, but our TV can really heat up! It's a seven year-old 27" CRT and our entertainment center heats up whenever it's on for more than a few hours. If you're not really watching something and just have it on for background noise, you can save a lot of money and heat by switching on a radio instead. As an added bonus, switching off the TV allows you to do other things, like go outside and enjoy the cool evening air first-hand instead of using any variety of cooling devices to bring that air to you!

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?