

# Winter efficiency tips

## *Tips to keep the cold out*

Each year, the average American family spends 43 percent of its utility bill on heating and cooling its living space, according to the U.S. Department of Energy (DOE). Generally, more than half of that percentage is for heating. You can slash your heating bill by changing how you keep the cold out.

Here are 10 tips for how to do that:

**#1: Dress for winter inside** – Often, we set our winter thermostats higher than needed. If you're wearing sleeveless tops and shorts and going barefoot inside your house in winter, you've got the thermostat set too high. Lower it to 68 degrees, and you'll be comfortable if you dress for winter. That means layering on long-sleeved shirts, sweats, sweaters and socks when inside, as well as outside. For every degree adjusted, you can save 1 percent to 3 percent on heating costs, depending on your heating source.

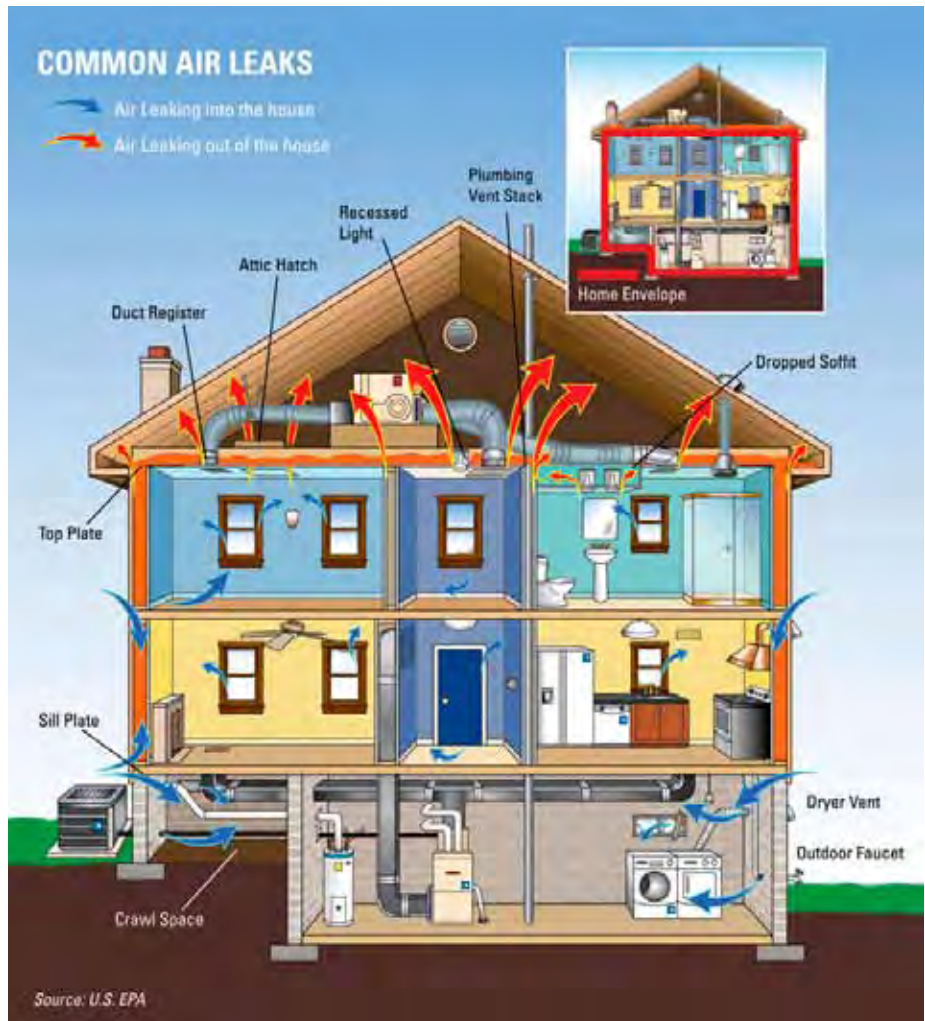
DOE points out that you can save 10 percent of your utility bill by turning back the thermostat 10 to 15 degrees for at least 8 hours.

**#2: Stop the drafts and leaks** - Save up to 15 percent of your heating dollars by caulking, sealing and weatherstripping wherever outside meets inside.

**#3: Take care of your furnace** – Replace or clean the furnace filter each month you heat; dirty filters can greatly affect the heating ability of the furnace and waste valuable fuel. Vacuum heating registers and as far into the ducts as you can reach. If you have baseboard or electric wall heaters, brush and remove dust and dirt from the cooling fins and fan. Check and clean electronic air cleaners every three weeks or so.

**#4: Insulate** – Insulation isn't sexy, but it's the low-hanging fruit of energy-efficiency improvements. Your home will be more comfortable winter and summer and your utility bill lower if you insulate to recommended or above levels. The University of Missouri Extension recommends R-49 for ceilings, R-18 for walls, R-25 for floors over crawl spaces, R-19 for crawl space walls, R-8 for slab edges and R-11 for basement walls. These are minimum values.

**#5: Adjust your water heater temperature** - It's easy to forget your water heater is running 24/7 to keep water hot for the relatively small amount of time you need it. Lowering the



### HouseLeaks.jpg

set temperature of your water heater to 120 degrees can add up to significant savings when you multiply 24/7 by 52 weeks a year. According to DOE, every 10-degree reduction in water temperature can save 3 to 5 percent in energy costs.

**#6: Reverse the switch on your ceiling fans** - Push down the warm air that naturally rises – especially important in rooms with high ceilings.

**#7: Open heating vents** – Make sure they are open and unblocked by furniture or other items to insure air is evenly distributed through the home.

**#8: Invest in a portable heater** – If you're willing to keep most of your house chillier and use the heater in just one room, then a portable heater can save heating dollars.

**#9: Check your ducts** – Look for sections that have become

separated. Seal leaks with mastic, butyl tape, foil tape or other heat-approved tapes — not duct tape.

**#10: Turn off ventilating fans within 20 minutes –** After 20 minutes, these fans in bathrooms and kitchens suck out warm air and can empty a warm house in about an hour! For additional tips, download A Guide to Energy-Efficient Heating and Cooling at [www.energystar.gov](http://www.energystar.gov).

## Stop the leaks:

### *Tips for caulking, sealing and weatherstripping*

**D**rafty, leaky homes waste 10 to 15 percent of your heating dollars. Simple weatherstripping and caulking can stop most of the leaks. For tips on stopping the leaks, download Do-It-Yourself Guide to Sealing and Insulating with ENERGY STAR at [www.energystar.gov](http://www.energystar.gov).

Here are a few suggestions:

**Seal attic leaks** - Doing that will likely make the biggest impact on your energy bill. Start by plugging the big holes first, such as open stud cavities. If your attic is finished, seal behind the kneewalls. Next, seal around the furnace flue, using proper techniques and seals. Then go after small gaps, using foam or caulk. Fill wiring and plumbing holes with expanding foam, and caulk around electrical junction boxes and fill holes in the box with caulk. If the space around your plumbing pipes is wider than 3 inches, stuff fiberglass insulation into the space. Once the fiberglass insulation is in place, follow the directions on the can to foam the space around the pipe. Finally, weatherstrip the attic hatch or door.

**Check doors and windows** - Weatherstrip and caulk any holes you see and around frames. Make sure doors seal properly.

**Close the fireplace damper** – When the fireplace is not in use, an open damper is like an open window that draws warm air out of the room and creates a draft.

**Caulk or seal every duct, wire or pipe that penetrates walls, ceilings and floors** - Plumbing vents can be especially bad, since they begin below the floor and go all the way through the roof.

**Seal the basement** - Caulk to seal along the basement sill plate

**Seal electrical outlets and switches on outside walls** – Use inexpensive foam gaskets that fit behind light switches and electrical outlet plates.

**Fix the floor** - Caulk around heating system floor registers to seal gaps

**Don't forget the windows and doors** - Close storm windows and doors

**Remove window air conditioners** – This prevents drafts and seals windows better.

## Don't duck duct care

**A**s much as 20 percent of conditioned air can be lost before even reaching the rooms you want heated or cooled because of faulty ducts. These big, often concealed hoses are easy to forget, but over time they can be crushed, flattened or cracked. Uninsulated ducts in a basement, crawl space or attic also lose heat.

So what's a clue that your ducts are leaking? High winter and summer utility bills. Rooms that are difficult to heat and cool. Stuffy rooms that never seem to feel comfortable. Ducts in an attic, crawlspace or garage. Tangled or kinked flexible ducts.

If these describe your situation, first fix the ones that will make the biggest difference:

- Seal those that run through the attic, crawl space, unheated basement or garage. Use duct sealant (mastic) or metal-backed (foil) tape to seal the seams and connections of ducts. Avoid duct tape, which can dry out or crack.
- After sealing these ducts, wrap them in insulation to keep them from getting cold in winter and hot in summer.
- Seal ducts you can access in the heated part of the house.
- Seal the connections at vents and registers where they meet the floors, walls and ceiling.
- Download the Environmental Protection Agency's and ENERGY STAR'S Duct Sealing at [www.epa.gov](http://www.epa.gov) or [www.energystar.gov](http://www.energystar.gov) for more tips on duct care.

## Where to look for household air leaks

**E**NERGY STAR identifies these common sites for air leaks. Stop the leaks with insulation, weatherstripping, wraps or caulking to work wonders on lowering your electric bill.

- Behind kneewalls
- Attic hatch
- Wiring holes
- Plumbing vent
- Open soffit (the box that hides recessed lights)
- Recessed light
- Furnace flue or duct chaseways (the hollow box or wall feature that hides ducts)
- Basement rim joists (where the foundation meets the wood framing)
- Windows and doors

## Wrap your house in a blanket

**I**nsulating your house is like wrapping it in a warm blanket. The better the insulation in your "building envelope," the warmer you'll feel in winter and cooler in summer.

Insulation is measured by R-value: a material's ability to resist heat flow. The higher the R-value, the greater the insulating power.

The University of Missouri Extension recommends R-49 for ceilings, R-18 for walls, R-25 for floors over crawl

spaces, R-19 for crawl space walls, R-8 for slab edges and R-11 for basement walls. These are minimum values.

Whether you use cellulose, fiberglass, foam or some other insulating material, here are useful tips from ENERGY STAR, the University of Missouri Extension and [www.consumerenergycenter.org](http://www.consumerenergycenter.org) on where to insulate:

**Insulate your attic** – This can be the most cost-efficient way to cut home heating costs

- Weatherstrip and insulate the attic hatch or door
- Seal holes in the attic that lead down into the house, such as open wall tops and duct, plumbing or electrical runs, with spray foam or rigid foam board
- Keep insulation fluffy to 18 inches or higher for an R-value of 49 in the attic
- Add a vapor barrier where it makes sense to do so: it must be placed nearest the warm side of the space being insulated – under attic insulation and between drywall and insulation in a wall, which may be difficult to do in an existing structure
- Check your crawl space to make sure there is insulation under the floor; if batts are on the ground, tie them with twine, staples or flexible rods to be in contact with the floor
- Insulate to fill large gaps around chimneys, furnace flues, plumbing pipes, ductwork and light fixtures in attic
- Lay insulation between attic floor joists and on the hatch or door or add more if already there
- Insulate ceilings in unheated basements and around the walls in heated basements or unvented crawl spaces
- Wrap older electric water heaters and those in unheated areas in a blanket of fiberglass (jacket kits are available in hardware or home improvement stores) to reduce heat loss by up to 45 percent; if you have a natural gas water heater, follow safety procedures in wrapping the heater

**Don't forget to insulate these often neglected areas:**

- Walls separating the living area from the attached garage
- Walls and ceiling of basement garages
- Walls and ceiling of dormers
- Sloping ceiling areas in upstairs rooms where the ceiling has been "clipped" to accommodate roof rafters
- Narrow cracks around window and door frames
- Between closely spaced studs at corners of exterior walls or at junctions of exterior and interior walls
- Ceilings near exterior walls

## Stop messing with the thermostat

Some of us "run hot" and others "run cold." That can lead to constant adjustment of the thermostat, which is highly inefficient, hard on the furnace and not all effective. Instead, consider the following:

Try 68 degrees or less during the day and 60 degrees when sleeping. Remember, for every degree adjusted, you can save 1 to 3 percent on heating costs.

Cranking your thermostat up to 90 degrees or down to 40 degrees will not heat or cool your house faster.

Most homes will re-heat in 15 minutes or less, according to the Kansas State University Research and Extension.

Install a programmable thermostat. If you're away during the day and have a different weekend schedule, then a programmable thermostat will allow you to automatically turn down the heat when you're gone or when you're sleeping at night and then boost the temperature when you need it. Properly using a programmable thermostat

could cut your heating costs by at least 20 percent. Return on investment is typically within a year.

If you set your thermostat at 80 degrees and you're not there to enjoy the warm house, you're paying for wasteful energy. It will take less energy to quickly warm a cool home than to maintain a warm temperature all day long.

## Seal those windows

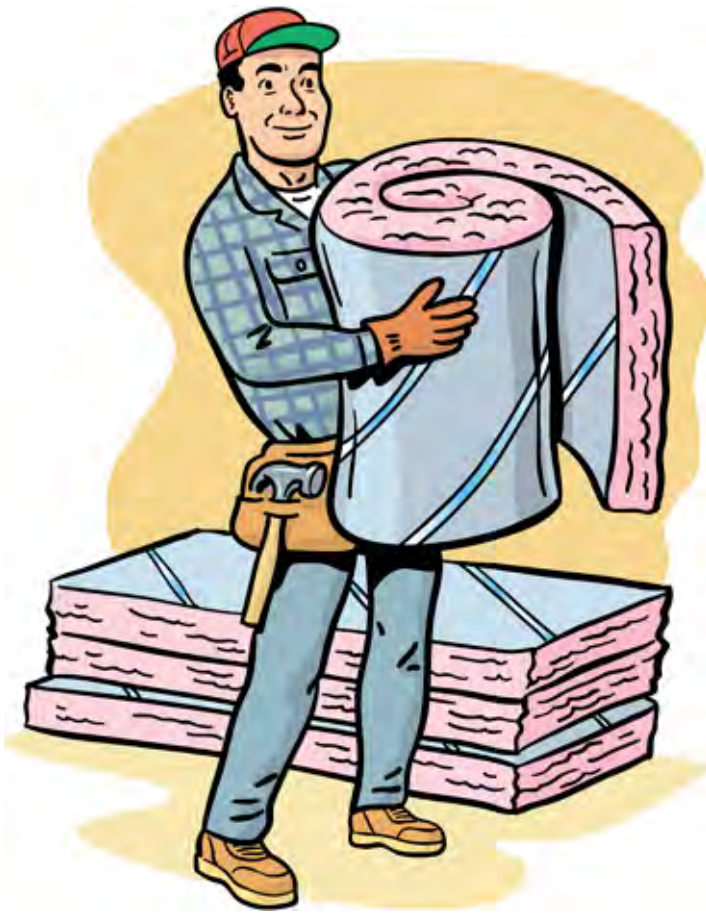
Winter isn't the best time to actually replace old windows with new, but if you didn't get around to winterizing existing windows, now is the time. According to the U.S. Department of Energy, about one-third of a home's heat loss is from windows and doors.

To tighten your windows, try these tips:

- Caulk and weatherstrip windows
- Place plastic over single-pane windows either inside or outside, leaving a ½-inch to 4-inch air space between the two.
- A more effective but expensive option than plastic is to install interior or exterior storm windows after sealing air leaks around your windows; this can reduce heating losses up to 50 percent, according to ENERGY STAR
- Let the sun shine in south windows during the day, but at night, close window shades and pull insulated drapery liners shut to block warm air from escaping around windows



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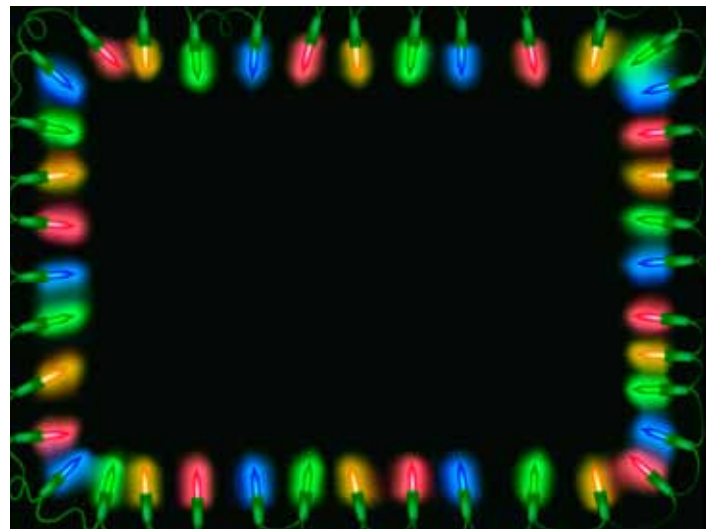


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 **Energy Efficiency**  
*Tip of the Month*

Carefully inspect indoor space heaters to be sure they are in good repair. Do not place heaters in high-traffic areas where they could be knocked over, and keep them far away from flammable items like furniture and curtains.

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**Christmas lights.jpg**

# Doug Rye says . . .

## Cooler attics, lower bills

The response to last month's column was just great. Many of you called to tell me that the column on window tinting was the answer to a problem that you have had for many years. Several have called to tell me that they have already had the tinting installed. When this happens, I light up like a newly decorated Christmas tree. Remember that the only reason for this column is to help you. So now I want to help you with another new answer for an old problem.

I receive many, many calls about hot attics. Well, it may not be super hot in your attic now, but now is the best time to make energy improvements there. I actually had a fellow call me while writing this column to ask about installing a radiant barrier in his attic. It is a nice cool day today. I told him to do like most folks and wait until it was a hot summer day with the attic temperature at about 150 degrees. He laughed and I commended him for planning ahead.

I'm going to give you a short course on residential radiant barriers. But first let me explain why the attic gets so hot. The rays of the sun hit the roof. The roof gets hot. Some rays are reflected back to the atmosphere but others actually go right through the roofing materials. The attic air is heated and the attic insulation absorbs much of the heat, thereby creating a super hot attic.

A residential radiant barrier is any product that can stop the radiant heat. It usually consists of sheets of aluminum foil, although it can be an aluminum-type paint. Some folks say that it is OK to just place that foil on the top of the attic insulation. That may actually help some, but it does not prevent the attic from getting hot. And if you have ductwork in the attic, it will still get hot. It is also my opinion that the product will lose its efficiency as it gets dusty. The best location for the radiant barrier is at the roof deck. For new construction, it is best to use roof sheathing that has the radiant barrier actually laminated to the sheathing. It is simple and certainly feasible and is being installed on many new houses in the south where cooling costs are a major consideration. Our testing shows that it performs magnificently.

If a radiant barrier is so helpful, then why don't more folks install it in their existing house? The answer is because it is difficult to install it properly. To do it right, the radiant barrier should be fastened to the bottom of the roof rafters. And if you think about it, this is not always a simple

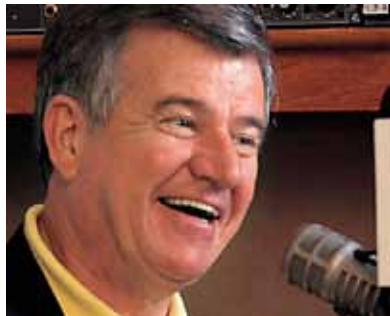
process and would probably take at least two people. This past summer, I was introduced to a product that was much easier to install and could be done by one person and no tools are needed. It looked good to me, but just like the window tinting, I don't suggest a product to others until I have used it and have total confidence in it.

We found a house that really needed a radiant barrier. We installed the product early in the morning on a day when the temperature at noon was 100 degrees. We came back to the house two days later when the temperature was even hotter at 102 degrees. We were happy to find that the attic temperature was nearly 30 degrees cooler than before.

When the attic temperature and the ductwork are 30 degrees cooler, one should have better comfort and lower utility bills. The product is called "Enerflex foil" radiant barrier. The cost of the product is about 70 cents per square foot, which makes it feasible for many homes. For more details about this product go to [www.enerflexfoil.com](http://www.enerflexfoil.com) or call my office at 501-653-7931.

See you next month. Until then, Merry Christmas to all.

*Doug Rye, a licensed architect living in Saline County, Ark., and the popular host of the "Home Remedies" radio show, works as a consultant for the Electric Cooperatives of Arkansas to promote energy efficiency to cooperative members. To order Doug's video or ask energy efficiency-related questions, call Doug at 501-653-7931. More energy-efficiency tips, as well as Doug's columns, can also be found at [www.ecark.org](http://www.ecark.org).*



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