



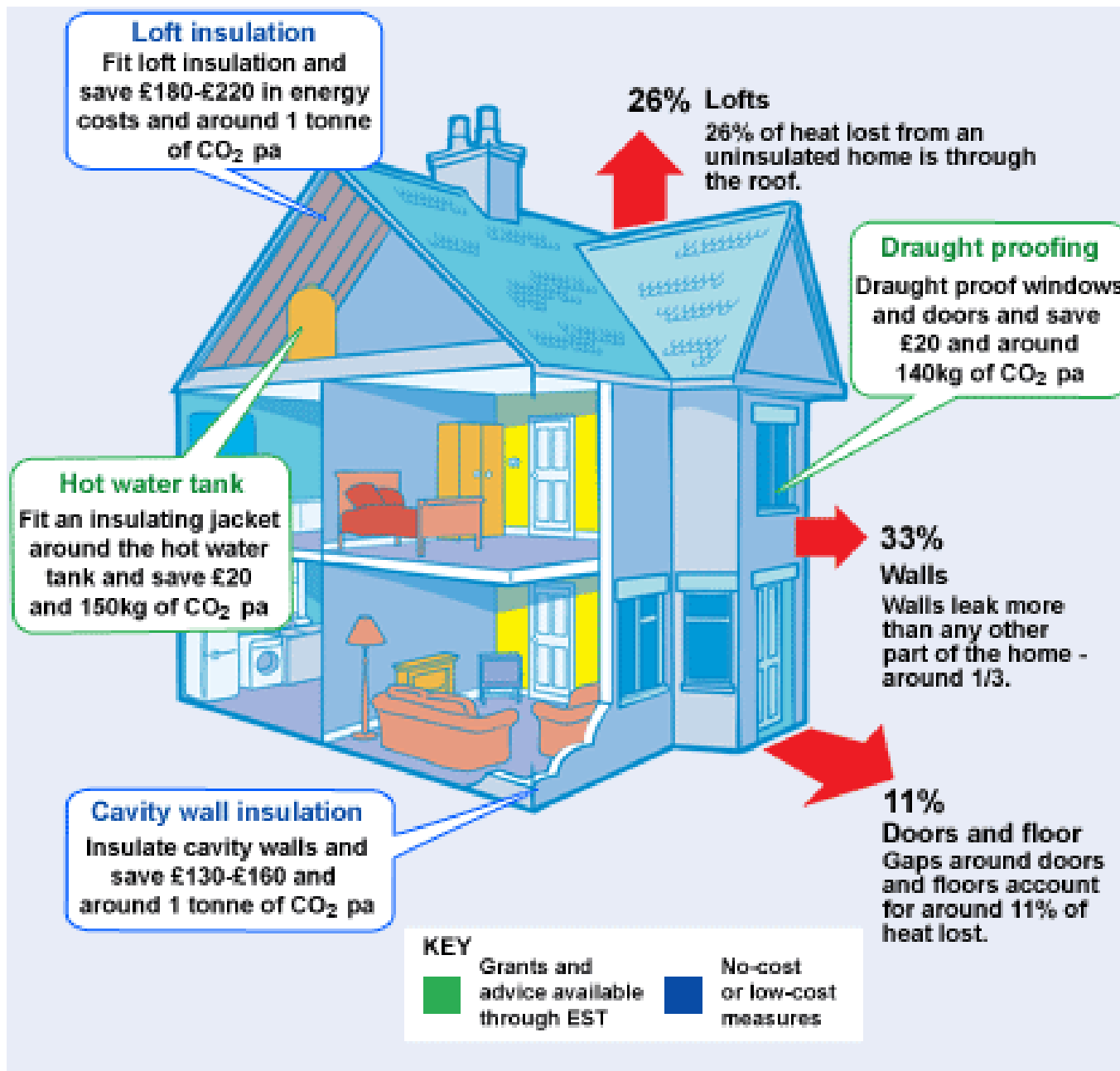
Energy Efficiency

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Before you start to produce your own energy it is useful to review and reduce current consumption with an Energy Audit

Do-It-Yourself Home Energy Assessments

- You can easily conduct a do-it-yourself home energy assessment (also known as a home energy audit). With a simple but diligent walk-through, you can spot many problems in any type of house. When assessing your home, keep a checklist of areas you have inspected and problems you found. This list will help you prioritize your energy efficiency upgrades.



Locating Air Leaks

- First, make a list of obvious air leaks (drafts). The potential energy savings from reducing drafts in a home may range from 5% to 30% per year, and the home is generally much more comfortable afterward.
- Check for indoor air leaks, such as gaps along the baseboard or edge of the flooring and at junctures of the walls and ceiling.
- Check to see if air can flow through these places:
 - Electrical outlets
 - Switch plates
 - Window frames
 - Baseboards
 - Weather stripping around doors
 - Fireplace dampers
 - Attic hatches
 - Wall- or window-mounted air conditioners.

- **Thinking about Energy use**
- Before an audit on your house, make a list of any existing problems such as condensation and uncomfortable or drafty rooms.
- Have copies or a summary of the home's yearly energy bills to remind yourself on the increases and why you need to do it!
- Think about your home and how your family use it:
- Is anyone home during working hours?
- What is the average thermostat setting for summer and winter?
- How many people live here?
- Is every room in use?

If you are having difficulty locating leaks, you may want to conduct a basic building pressurization test:

- First, close all exterior doors, windows, and fireplace flues.
- Turn off all combustion appliances such as gas burning furnaces and water heaters.
- Then turn on all exhaust fans (generally located in the kitchen and bathrooms) or use a large window fan to suck the air out of the rooms.

- You can use incense sticks or your damp hand to locate these leaks. If you use incense sticks, moving air will cause the smoke to waver, and if you use your damp hand, any drafts will feel cool to your hand.

- On the outside of your house, inspect all areas where two different building materials meet, including:
- All exterior corners
- Where siding and chimneys meet
- Areas where the foundation and the bottom of exterior brick or siding meet.
- You should plug and caulk holes or gaps for, pipes, electric outlets, and wiring. Look for cracks and holes in the mortar, foundation, and siding, and seal them with the appropriate material. Check the exterior caulking around doors and windows, and see whether exterior storm doors and primary doors seal tightly.

- When sealing any home, you must always be aware of the danger of indoor air pollution and combustion appliance "backdrafts." Backdrafting is when the various combustion appliances and exhaust fans in the home compete for air. An exhaust fan may pull the combustion gases back into the living space. This can obviously create a very dangerous and unhealthy situation in the home.
- In homes where a fuel is burned (i.e., natural gas, fuel oil, propane, or wood) for heating, be certain the appliance has an adequate air supply. Generally, one square inch of vent opening is required for each 1,000 Btu of appliance input heat. When in doubt, contact your local utility company, energy professional, or ventilation contractor.

- **Insulation**

- Heat loss through the ceiling and walls in your home could be very large if the insulation levels are less than the recommended minimum. When your house was built, the builder likely installed the amount of insulation recommended at that time. Given today's energy prices (and future prices that will probably be higher), the level of insulation might be inadequate, especially if you have an older home.
- If the attic hatch is located above a conditioned space, check to see if it is at least as heavily insulated as the attic, is weather stripped, and closes tightly. In the attic, determine whether openings for items such as pipes, ductwork, and chimneys are sealed. Seal any gaps with an expanding foam caulk or some other permanent sealant.
- While you are inspecting the attic, check to see if there is a vapour barrier under the attic insulation. The vapour barrier might be tarpaper, craft paper attached to fibreglass batts, or a plastic sheet.
- If there does not appear to be a vapour barrier, you might consider painting the interior ceilings with vapour barrier paint. This reduces the amount of water vapour that can pass through the ceiling. Large amounts of moisture can reduce the effectiveness of insulation and promote structural damage.
- Make sure that the attic vents are not blocked by insulation. You also should seal any electrical boxes in the ceiling with flexible caulk (from the living room side or attic side) and cover the entire attic floor with at least the current recommended amount of insulation.

- Checking a wall's insulation level is more difficult. Select an exterior wall and turn off the circuit breaker or unscrew the fuse for any outlets in the wall. Be sure to test the outlets to make certain that they are not "hot."
- Check the outlet by plugging in a functioning lamp or portable radio.
- Once you are sure your outlets are not getting any electricity, remove the cover plate from one of the outlets and gently probe into the wall with a thin, long stick or screwdriver.
- If you encounter a slight resistance, you have some insulation there.
- You could also make a small hole in some other unobtrusive place to see what, if anything, the wall cavity is filled with. Ideally, the wall cavity should be totally filled with some form of insulation material.
- Unfortunately, this method cannot tell you if the entire wall is insulated, or if the insulation has settled. Only a thermal imaging camera can do this.



Heating/Cooling Equipment

- Inspect heating and cooling equipment annually, or as recommended by the manufacturer. Have a professional check and clean your equipment once a year.
- If the unit is more than 10 years old, you should consider replacing your unit with one of the newer, energy-efficient units. A new unit would greatly reduce your energy consumption, especially if the existing equipment is in poor condition. Check your ductwork for dirt streaks, especially near seams. These indicate air leaks, and they should be sealed with a duct mastic. Insulate any ducts or pipes that travel through unheated spaces.
- Radiators – do they have thermostatic valves attached?



Lighting

- Energy for lighting accounts for about 10% of your electric bill. Examine the wattage size of the light bulbs in your house. You may have 100-watt (or larger) bulbs where energy saving ones would do. Your electric utility may offer incentives for purchasing energy efficiency lamps.
- Use energy saving lightbulbs. They last up to 10 times longer than ordinary bulbs, and using one can save you around £45 over the lifetime of the bulb. This saving could be around £70 over its lifetime if you're replacing a high wattage incandescent bulb, or one used for more than a few hours a day.

Top ten tips

Here are some simple ways you can stop wasting energy and money now.

- Turn your thermostat down. Reducing your room temperature by 1°C could cut your heating bills by up to 10 percent and typically saves around £50 per year. If you have a programmer, set your heating and hot water to come on only when required rather than all the time.
- Is your water too hot? Your cylinder thermostat should be set at 60°C/140°F.
- Close your curtains at dusk to stop heat escaping through the windows and check for draughts around windows and doors.
- Always turn off the lights when you leave a room.
- Don't leave appliances on standby and remember not to leave laptops and mobile phones on charge unnecessarily.
- If possible, fill up the washing machine, tumble dryer or dishwasher: one full load uses less energy than two half loads.
- Only boil as much water as you need (but remember to cover the elements if you're using an electric kettle).
- A dripping hot water tap wastes energy and in one week wastes enough hot water to fill half a bath, so fix leaking taps and make sure they're fully turned off!
- Use energy saving lightbulbs. They last up to 10 times longer than ordinary bulbs, and using one can save you around £45 over the lifetime of the bulb. This saving could be around £70 over its lifetime if you're replacing a high wattage incandescent bulb, or one used for more than a few hours a day.

Energy Saving Trust

<http://www.energysavingtrust.org.uk/Easy-ways-to-stop-wasting-energy/>