

# Home Energy Audit

You can easily conduct a basic home energy audit yourself. With a simple walk-through, you can spot many problems in any type of home. Use this checklist to identify any problem areas that your home may have. Making energy efficient changes/upgrades can significantly lower energy consumption and your monthly bill. At the end of the audit, there is a list of simple steps that you can do to become further energy efficient.

Check off the items once you have finished a task, making any notes in the areas provided.

## Check for Air Leaks

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 to see if air can flow through the places below. Hold a feather or lightweight piece of string in front of the below areas, if it moves – even slightly – there is airflow.
  - Electrical Outlets
  - Switch Plates
  - Window Frames
  - Baseboards
  - Weather Stripping Around Doors
  - Fireplace Dampers
  - Attic Hatches
  - Wall – or window – Mounted Air Conditioners

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- Check for gaps around pipes and wires, electrical outlets, foundation seals, and mail slots.

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- Check to see if the caulking and weather stripping are applied properly, leaving no gaps or cracks, and are in good condition.

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- On the outside of your house, inspect all areas where two different building materials meet, looking for cracks and/or gaps, including:
    - All exterior corners
    - Where siding and chimneys meet
    - Areas where the foundation and the bottom of exterior brick or siding meet
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- Check for holes or cracks around your walls, ceilings, windows, doors, light and plumbing fixtures, switches, and electrical outlets that can leak air into or out of your home.
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Anywhere you felt/saw air, cracks, or gaps, use caulking or weather stripping to fill and seal them. If airflow was felt/saw behind electrical outlets and light switch plates, purchase electrical and switch plate insulation pads to place behind the plate.

## Insulation

Heat and cool air can easily escape non-insulated attics requiring more heat, or air conditioning in the home. Un-insulated spaces account for 50 to 70% of the energy used in residential homes.

- Check the R-value of the insulation in your attic, for the Houston area you should have insulation with at least an R-value of 22.0.

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- 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.

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- In the attic, check 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.

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- While you are inspecting the attic, check to see if there is a vapor barrier under the attic insulation. The vapor barrier might be tarpaper, Kraft paper attached to fiberglass batts, or a plastic sheet. If there does not appear to be a vapor barrier, you might consider painting the interior attic ceilings with

vapor barrier paint. This reduces the amount of water vapor that can pass through the ceiling. Large amounts of moisture can reduce the effectiveness of insulation and promote structural damage.

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- 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 (usually 9 inches).
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- Check to see if your water heater is insulated with a water heater blanket.
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- Check to see if hot water pipes are insulated – water cools faster on exposed pipes and is therefore re-heated more often, which requires the use of more energy.
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## Heating and Cooling Equipment

Cooling and heating is the largest energy expense, accounting for approximately two-thirds of annual energy bills.

- If you have a forced-air furnace, check your filters and replace them as needed. Generally, you should change them about once every month or two, especially during periods of high usage. Have a professional check and clean your equipment once every two years.
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- Check your ductwork for dirt streaks, especially near seams. These indicate air leaks, and they should be sealed with duct mastic. Insulate any ducts or pipes that travel through unheated spaces.
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- Check to see if your thermostat is programmable, and program the temperature to be set higher for air conditioning and lower for heat, when no one is going to be home, and during the night when everyone is asleep.

## Lighting / Electronics / Appliances

Only 10% of an incandescent bulb's energy provides light. The remaining 90% gives off heat, which is problematic during the summer months. Add up the light fixtures in your home, and then think of them as individual heaters adding to your cooling costs.

- Examine the wattage size of the light bulbs in your house. You may have 100-watt (or larger) bulbs where 60 or 75 watts would do. You should also, wherever possible, replace incandescence light bulbs to compact fluorescent lights, especially for areas where lights are on for hours at a time.
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- Check to make sure all electronics and appliances are only plugged in if they are in use. You can use a power strip to plug in your electronics and appliances and simply turn off the strip when they are not in use.
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- Check electronics and appliances for the ENERGY STAR label. For electronics and appliances without the ENERGY STAR label, consider ENERGY STAR electronics and appliances for your next purchase.
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### Additional Information

- Compare your home's energy to other similar homes; go to [http://www.energystar.gov/index.cfm?fuseaction=home\\_energy\\_yardstick.showStep2](http://www.energystar.gov/index.cfm?fuseaction=home_energy_yardstick.showStep2) and see how you rate.
- Use the home energy saver website <http://hes.lbl.gov/> as an additional resource to your home energy audit; calculate how much you can save by becoming better energy efficient.
- If you want to further improve the efficiency of your home, especially if you have high energy bills or your home is uncomfortable, consider contacting a professional to conduct a home energy audit to diagnose why.

Your first step should be to contact your utility to see if they offer free or discounted energy audits to their customers. If not, you can hire a home energy professional, such as a certified Home Energy Rater, to evaluate your home's energy efficiency.

To find a Home Energy Rater, visit the [ENERGY STAR for Homes Partner Locator](#).

- If you have any questions regarding you home energy audit, please feel free to email the Mayor's Office of Environmental Programming. [envcomments@cityofhouston.net](mailto:envcomments@cityofhouston.net)

## Energy Savings Tips

- Use task lighting; instead of brightly lighting an entire room, focus the light where you need it
- Turn lights off when you are not in a room
- During hot summer days keep your window coverings closed to block the sun's hot rays, and use white window shades, drapes, or blinds to reflect heat away from the house
- Use energy-saving settings on refrigerators, dishwashers, washing machines, and clothes dryers
- Air dry dishes instead of using your dishwasher's drying cycle
- Try raising the temperature in your house a degree or two
- Turn down the temperature to your water heater to 120 degrees F
- Take short showers, with a low-flow showerhead, instead of baths
- Wash only full loads of clothes when possible and clean your dryer's lint filter after every load
- Turn off your computer when it is not in use; automatic switching to sleep mode or manually turning monitors off is always the better energy-saving strategy
- Don't place lamps or TV sets near your air-conditioning thermostat. The thermostat senses heat from these appliances, which can cause the air conditioner to run longer than necessary
- Reduce air conditioning costs by planting shade trees and shrubs around your house, especially on the west side and by your air conditioning unit

Visit <http://www.takecareoftexas.org/> to find more tips on how to be energy efficient

**For further energy saving tips and information, visit the following websites:**

- Mayor's Office of Environmental Programming  
<http://www.houstontx.gov/environment/index.html>
- U.S. Department of Energy  
<http://www.doe.gov/>
- U.S. Environmental Protection Agency (EPA)  
<http://www.epa.gov>