



Top 10 Do-It-Yourself Energy Audit Procedures

for the home or small business

- 1 Assess your utility bill
- 2 Assess envelope insulation
- 3 Check for air leaks within envelope
- 4 Check if ducts are sealed
- 5 Assess mechanical duct insulation
- 6 Verify thermostat setpoints
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- 8 Check water heater temperature
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- 10 Check hot water faucets for leaks

1

Assess your utility bill: Homes or small businesses can compare their energy consumption against others by using ENERGYSTAR home Energy Yardstick online program. To start, the program will require you to enter your home's electricity consumption from the last 12 months and the square footage of your home. The results will tell you your "yardstick" score and recommendations to reduce your utility bills. https://www.energystar.gov/index.cfm?fuseaction=HOME_ENERGY_YARDSTICK.showGetStarted

2

Assess insulation at building envelope: Heating and cooling account for 46% of an average home's energy consumption. To reduce these costs, owners should focus on how insulation is installed in the home. Assess if the attic floor, including the hatch, roof, basement ceiling, and crawlspace are insulated. The EPA's ENERGY STAR program provides DIY tips on how to install insulation and properly seal additional wire or pipe penetrations. http://www1.eere.energy.gov/consumer/tips/pdfs/energy_savers.pdf

3

Check for air leaks within the building envelope: The building envelope can be described as the barrier between unconditioned and conditioned space. A majority of infiltration occurs at unconditioned attic floors, exterior walls and unconditioned basement ceilings. Assess weather stripping at doors and operable windows and refer to ENERGY STAR's recommended air sealing tips. http://www.energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11280

4

Check if mechanical ducts are sealed: Mechanical ducts could be losing 15-33% of forced air due to leaks. Often these leaks occur at seams of ducts, duct branches, or between the duct and the furnace or air handler unit. If ducts are accessible verify if they are properly sealed. Consider two DIY options to fix duct leaks; mastic sealant which is preferred or wrapping joints with an approved UL-listed HVAC-rated aluminum tape. https://www.energystar.gov/ia/products/heat_cool/ducts/DuctSealingBrochure04.pdf

5

Assess mechanical duct insulation: If your ducts are located in an un-conditioned space such as an attic, garage, basements, or crawl space improperly insulated or un-insulated ducts could lose 10-30% of a home's energy. If your mechanical ducts are accessible verify if they are wrapped with insulation and if the seams of the insulation are taped with mastic or foil tape.
http://www.energysavers.gov/your_home/insulation_airssealing/index.cfm/mytopic=11500

6

Verify your thermostat's setpoints: Is your thermostat set at a constant temperature even when you are not at home? Customizing the thermostat temperature settings can minimize your home's heating or cooling requirements in both summer and winter, or when you are asleep or away. If your home does not have a programmable thermostat first check with your local utility provider to see if you are eligible for rebates for the purchase and/or installation of a programmable thermostat.
http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12720

7

Assess HVAC system filters & coils: Check both the filters and coils of the HVAC system. Dirty filters restrict air flow and can affect the efficiency. Therefore it is recommended to change air filters every three months and/or hire a contractor to inspect your system every spring and fall. Also cleaning the coils can prevent possible system failures and improve efficiency.
http://www.energystar.gov/index.cfm?c=heat_cool.pr_maintenance

8

Check water heater temperature: The Department of Energy states for every 10° F reduction in your water heater temperature, this could possibly save 3-5% energy costs. Check the thermostat on the outside of your tank and see if it is possible to reduce its storage temperature. The EPA suggests hot water tanks to be set at a minimum of 120°F for storage to minimize the growth of Legionella bacteria in your tank. After the setting is adjusted, test the sink's hot water temperature to avoid the potential for scalding. http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=13090

9

Inventory electronics and light bulbs: A simple and inexpensive way to reduce your electricity bill is to replace incandescent bulbs with compact fluorescent bulbs or reduce the light bulb's wattage. Also assess your home or small business's electronics and appliances energy use by installing small energy meters. The Alexandria Library has a total of 18 Kill A Watt™ meters available for check out, which includes a manual and worksheet on how to calculate your potential energy savings. In addition, check which electronics or transformers consume unnecessary energy. Even those electronics which are not turned "on" still consume electricity if they are plugged into an outlet.
<http://www.alexandriava.gov/gbrc/>

10

Check hot water faucets for leaks and flow rate: A leaky faucet could waste as much as 2,700 gallons a year (one drip per second). Verify both your hot water kitchen and bath faucets are not leaking and assess if the water flow rate could be decreased. Installing aerators and low-flow (1.5 gpm) shower heads could conserve water and reduce energy consumed for water heating.
http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=13050

Apply Today for a Free Energy Assessment!

Energy assessments (which include surveys and audits) are an excellent way to assess the efficiency of a building and a great starting point to help determine where to begin making green improvements. Over the next year, the City will provide, free of cost, a total of eight (8) assessments to building owners in Alexandria. Applications will be accepted between 8:00 a.m., Friday, March 11, 2011 and 5:00 p.m. Friday, April 8, 2011.

Additional Resources

Green Building Resource Center <http://www.alexandriava.gov/gbrc/>
Virginia Department of Mines, Minerals and Energy's List of Energy Auditors
<http://www.dmme.virginia.gov/de/arra-public/EnergyAudit.shtml>
www1.eere.energy.gov
energysavers.gov
energystar.gov



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