

# TIPS FOR ENERGY EFFICIENCY IN HISTORIC BUILDINGS

## 1. START WITH AN ENERGY AUDIT

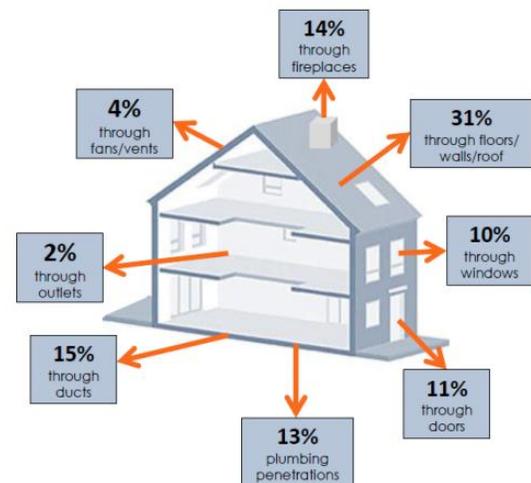
An energy audit is a professional assessment of how much energy your home actually consumes. Using techniques like blower door tests, thermal imaging, duct testing, and visual inspections of insulation, energy auditors can provide homeowners with specific recommendations for changes and fixes that will provide true financial benefit and reasonable return on investment. Getting an energy audit is a great first step toward energy efficiency to determine where the problem areas are and ensure that you spend your money on the most cost effective solutions. Energy audits start around \$300 and the cost of the testing can typically be applied toward any work performed as a result of audit recommendations. Go to [www.bpi.org/locator-tool/find-a-contractor](http://www.bpi.org/locator-tool/find-a-contractor) to find an Energy Auditor near you.

## 2. AIR SEAL

After an energy audit, locating and sealing air leaks is often the first step toward energy efficiency. However, sealing a historic building too tightly can lead to bigger issues such as improper ventilation and trapped moisture. For instance, when caulking the exterior of the building it is **not recommended** to caulk the underside of clapboards or under windows as this can often prevent moisture from escaping and cause long term deterioration of the structure.

Recommended ways to reduce air leaks:

- Weather-strip doors and windows
- Caulk cracks and joints at baseboards
- Seal around outlets, switches, and fixtures
- Seal plumbing and electrical penetrations
- Insulate and seal attic hatches
- Seal any cracks or gaps (appropriately) where window and door frames meet the wall
- Use spray foam sealant for basement and attic cracks
- Close the fireplace damper when not in use



Sources of air leaks (U.S. Department of Energy)

## 3. INSULATE

Adding insulation to your historic home in the right way can make a big difference to your overall comfort level. Before you install insulation, make sure you address areas that require air sealing and be sure to research different types of insulation for the most appropriate applications. Insulating around ducts and pipes can also often improve efficiency. An energy audit will let you know where insulation is recommended for best results. **Attic:** Most heat loss and gain is through the top of the house. Making sure your attic is properly insulated is a great way to increase energy efficiency. Also, be sure to insulate or air seal your attic door or hatch as they can be responsible for a great amount of heat loss/gain. **Basement/crawlspace:** If the basement or crawlspace is not part of the conditioned space of the building then it is typically recommended to add insulation between floor joists on the underside of the subfloor. Moisture barriers on exposed dirt floors of crawlspaces are also recommended to prevent moisture from entering the building. **Walls:** Adding insulation to the walls of historic

buildings may not be a cost effective or safe solution. In many cases, insulation added to historic walls can trap moisture and lead to accelerated deterioration of the structure. Add insulation to walls only as a last resort and be sure to check with a professional who understands historic buildings to make sure moisture issues are handled beforehand.

#### **4. MAINTAIN AND WEATHERIZE HISTORIC WINDOWS**

Many myths about historic properties and energy efficiency stem from the idea that historic wood windows are inherently energy inefficient and that replacing historic windows with an “energy efficient” model will save tons of money on energy bills. But a look at facts and studies into window replacement when considering overall energy efficiency and cost benefit analysis proves that this is not true. Studies show that with a few simple changes and regular maintenance historic wood windows will offer comparable energy efficiency to replacement windows with a better return on investment.

Improving the Energy Efficiency of Historic Wood Windows:

- Maintain your windows with proper glazing and paint
- Add exterior and/or interior storm windows
- Add weather stripping
- Caulk around the window frame where the frame meets exterior cladding
- Use shades or curtains for extra insulation

#### **5. UPGRADE EQUIPMENT AND APPLIANCES**

**HVAC:** Up to half of the energy used in a home can go towards heating and cooling. Make sure your air filters are clean and have a professional tune up your HVAC annually to ensure that the system is working properly so that there are no surprises when the weather changes.

**Appliances:** Consider both the initial cost of new appliances and their yearly operating costs. Energy Star appliances can help you save money in the long run with a lower impact to utility bills. Buying a new refrigerator or freezer? Check out SCE&G Appliance Recycling Rebates for up to \$100 back.

#### **6. BEHAVIORAL AND OPERATIONAL ENERGY-SAVING STEPS**

- Lower the thermostat in the winter, raise it in the summer, and use a programmable thermostat to modify temperatures on occupancy patterns.
- Replace your bulbs with Compact Fluorescents (CFLs) or LEDs. Using dimmer switches and turning off lights when leaving a room can also impact your overall costs.
- Adjust your water heater temperature. Most water heaters are set to 140°, but setting it to 120° can save on energy costs. Use an insulating jacket on your water heater for extra savings.
- Use insulated shades and curtains to control heat gain and loss through windows.
- Use operable windows, shutters, awnings and vents as originally intended to control temperature and ventilation and take advantage of natural light.
- Install motion sensors and timers for lighting and local ventilation, such as bathroom exhaust fans.
- Reduce “phantom” electricity loads by turning equipment off when not in use.
- Clean and service mechanical equipment regularly.