

ENERGY EFFICIENCY TIPS FOR HISTORIC HOME OWNERS

Adapted from several sources.

Passive Measures

These “passive” measures can save as much as 30% of the energy used in a building. They are especially appropriate for historic buildings because they do not require alterations or introduce new materials.

- Reduce the number of lights needed by using windows, shutters, awnings and vents to get fresh air in and keep heat out in summer, and to allow heat through in winter.
- Lower room thermostats in the winter and raise them in the summer to control the temperature according to use.
- Have mechanical equipment serviced regularly, including cleaning radiators and forced-air registers to be sure they work properly.

Retrofitting

Limit retrofitting to measures that gain reasonable energy savings at reasonable cost, with the least effect on the building’s character. The best return on your investment is to make sure your attic is well insulated! Avoid retrofitting that results in inappropriate alterations, such as the wholesale removal of historic windows, the addition of insulating aluminum siding, or installing dropped ceilings in large rooms. Be sure that retrofitting does not create moisture problems. As moisture comes in through the walls and roof, it may condense in retrofitted materials, creating the potential for deterioration. You can avoid this problem by adding a vapor barrier facing in.

- Check the attic, roof, walls, and basement for construction methods and the presence of insulation. Check the insulation for coverage and a vapor barrier, to determine if you need additional insulation, what type, and where to install it.
- Check air infiltration at doors, windows, and where the floors and ceilings meet the walls.
- Check the exterior materials, such as painted wood siding or brick, and the roof, to be sure they are weather tight. Be sure you can keep rain out before you spend money on weatherizing.

The following list includes recommended retrofitting measures. The list starts with the easiest and least expensive, with the highest potential for saving energy. Items at the bottom of the list can pose technical and preservation problems and often cost more than the energy they save.

Air Infiltration: A lot of heat loss occurs because cold outside air comes into the building through loose windows and doors and cracks in the building’s shell. Add weather-stripping to doors and windows and caulk open cracks and joints to reduce the infiltration. Be careful not to seal the building so tightly that moisture can’t escape. Avoid using materials that introduce inappropriate colors or visually damage the building’s architectural character.

Attic Insulation: The best return on your investment in conserving energy is to insulate your attic. Heat rising through the attic and roof is a major source of heat loss, and reducing this heat loss should have high priority in preservation retrofitting. Adding insulation to accessible parts of the attic needs little skill, is effective in saving energy and usually reasonable in cost. If the attic is unheated and not lived in, place the insulation between floor joists with the vapor barrier down. If the attic is floored or heated, insulation is usually placed between roof rafters with the vapor barrier facing in. Be sure the attic is properly ventilated, or the insulation will take up moisture and lose its effectiveness.

Basement and Crawl Space Insulation: A lot of heat escapes through cold basements and crawl spaces. Adding insulation is very effective, but can be complicated by the dampness often present. Be sure to install the insulation properly for the specific location. In crawl spaces and some unheated basements,

insulation is usually placed between the first floor joists (the basement's ceiling) with the vapor barrier facing up. Do not staple the insulation, because staples often rust away. Use special anchors developed for insulation in damp areas.

Mechanical equipment: Be sure that your equipment works as efficiently as possible. If the best professional advice is to replace your equipment, keep the following in mind. First, equipment you install now will go out of date quickly relative to the life of your historic building. It may be best to wait until new technologies are more feasible, efficient, and inexpensive. Second, do not install new equipment and ductwork so that the installation or later removal will damage the historic building materials. Hiding piping and ductwork inside walls or floors may not always be appropriate because of the potential for damage. Make every effort to choose a mechanical system that requires the least intrusion into the building's historic fabric and that can be updated or altered without major damage to floors and walls.

Windows and Storm Windows: Windows are a source of heat loss because they are often sources of air infiltration. Adding storm windows improves these characteristics. If your building has storm windows, either wood or metal framed, keep them. Be sure they fit tightly and are in good working condition. When installing storm windows, be careful not to damage the historic window frame. If metal frames damage the building's appearance, you may need to paint them to match the historic frames. Storm windows are readily available in a variety of sizes and styles, at reasonable cost.

Interior Storm Windows: These can be as effective as exterior storm windows, but they can damage the historic windows and sills by condensation. Moisture may condense on the outer (historic) sashes and sills, blistering the paint and damaging the wood. You can use rigid plastic sheets as interior storm windows by attaching them directly to the historic sash. They are not as effective as storm windows because they can allow air to infiltrate around the sash. If you use plastic sheets, be sure to install them with the least possible damage to the historic sash, and remove them occasionally to let the sash dry. Be sure that the historic frame and sash are completely caulked and weather-stripped. If you use interior storm windows, you can reduce the potential for moisture deterioration by opening or removing the windows during mild months. Replacement windows, especially vinyl or aluminum, will seriously lower the historic integrity of your home, and are not allowed in most circumstances. The City of Albany staff and Landmarks Advisory Commission must approve replacement windows and doors on historic homes in the National Register Historic District.

Doors and Storm Doors: Most historic wooden doors, if they are solid wood or paneled, have fairly good thermal properties and should not be replaced, especially if they are important architectural features. Be sure to maintain doors and frames, paint regularly, and caulk and weather-strip when needed. Storm doors improve energy efficiency, but the cost can be high compared to the savings. Storm doors are not recommended for mild climates, because of their effect on a building's appearance. Storm doors should be compatible with the building's architectural character and painted to match the historic doors.

Wall Insulation: The cost of adding wall insulation to a wood frame building is high, and the potential for damage even higher. Wall insulation is not very effective for small, one-story frame buildings because heat loss through the walls is relatively low. Consider wall insulation in a cold climate if your historic building is two or more stories, but use extreme care in installing. Insulation must be dry to work properly. Installing insulation in wall cavities without a vapor barrier and some ventilation can be disastrous. The insulation will become saturated with moisture and actually increase heat loss. Water vapor can also condense into droplets and seriously damage sills, window frames, framing and bracing. Correcting these problems can require completely dismantling the exterior or interior wall surfaces, at great cost. If it is absolutely necessary to add wall insulation to your frame building, install the insulation from inside the building, with the vapor barrier facing in.