



Metro Historic Zoning Commission

INSULATION & BARRIERS DESIGN REVIEW SUPPLEMENT

ADDING INSULATION AND VAPOR BARRIERS TO HISTORIC BUILDINGS

VAPOR BARRIERS

A common component of many rehabilitation projects is the addition of a vapor barrier, that could require the removal of exterior siding. Although common for new construction, a vapor barrier is not always a necessary component for a historic building. According to Martin Holladay, writing for the Green Building Advisor, "If your wall doesn't have a vapor retarder, there is no need to worry. Builders worry way too much about vapor diffusion and vapor retarders. Its actually rare for a building to have a problem caused by vapor diffusion. (www.greenbuildingadvisor.com)

INSULATION

Breathability. Recognize that historic walls, whether masonry or wood, were intended to "breathe" to preserve the materials. Addition of waterproof and moisture proof materials, including insulation, may trap moisture inside the floors, walls, and ceiling/roof to create conditions that damage or destroy the historic materials. Despite best efforts, water/moisture will enter the walls, either through leaks or condensation.

Hints:

1. Provide an air space and avoid materials that will hold water and provide an environment for mold.
2. Maintain or use porous materials and air gaps to allow the natural migration and dissipation of moisture.
3. Avoid oversized HVAC units.
4. Control moisture creating conditions in kitchens, bathrooms, and similar spaces by exhausting and ventilation.

5. Keep the indoor temperature warmer in the summer and cooler in the winter to protect against damage to the structure, create a healthier environment for the occupants, and save energy.

Cost Effective Methods for Insulation. Multiple studies show that a significant amount of heat loss is through attics and floors. The National Park Service (NPS) recommends attic and basement insulation as the most cost-effective locations for new or improved insulation. The NPS states, "In general, adding insulation to the walls of historic buildings is not a cost-effective or sensitive treatment. Adding blown-in insulation to historic wall assemblies may trap moisture within the wall and lead to accelerated and often hidden deterioration of the structure." (www.nps.gov)

Hints.

1. Add insulate or upgrade insulation in the places that are the most cost effective and have the greatest impact —attic spaces, crawl spaces, basements, around heating/cooling ducts, and around water pipes. (Old insulation may need to be replaced to take advantage of better performing materials.)
2. Ensure that the exterior is properly caulked against water intrusion and the interior walls are caulked and sealed against air infiltration. Add weather stripping.
3. Repair and paint windows and doors. Consider the addition of storm windows and doors.
4. If blown in insulation is used, be sure that it does not contact the exterior wall material. For instance, blown in insulation would NOT be appropriate in a wood stud wall with lap siding applied directly to the outside face of the studs. In this condition, moisture would be absorbed by the insulation and create conditions favorable to mold and rot.
5. Back prime any new materials for optimal life.
6. Add shading devices such as awnings or deciduous trees.
7. Be cautious of information that comes from a company that is trying to sell you a product or service.

RESOURCES

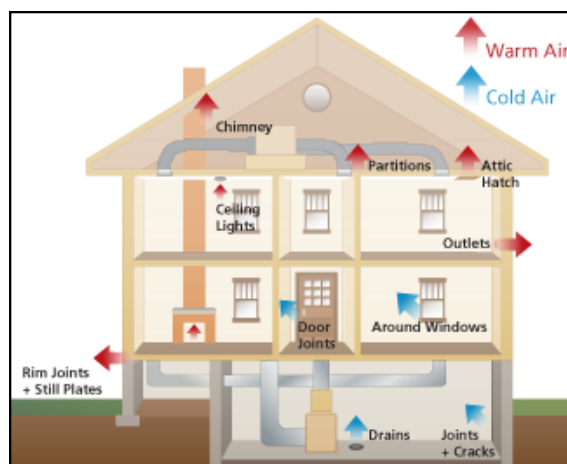
[Brick Houses and Vapor Barriers | Old House Web](#)

[Weatherization of Historic Buildings: Install Insulation \(U.S. National Park Service\) \(nps.gov\)](#)

[The History of Peeling Paint, Insulation, and Vapor Barriers - GreenBuildingAdvisor](#)

[Energy Advice for Owners of Historic and Older Homes | US EPA ARCHIVE DOCUMENT](#)

[Energy Efficiency and Historic Buildings: Insulating Solid Walls \(historicengland.org.uk\)](#)



Air infiltrates into and out of a home through every hole and crack. About one-third of this air infiltrates through openings in ceilings, walls, and floors. (www.nps.gov)