

I N S U L A T I O N

DEPARTMENT OF ENVIRONMENTAL PROTECTION • NATURAL & HISTORIC RESOURCES • HISTORIC PRESERVATION OFFICE

Many rehabilitation projects include proposals for insulation and weatherization. These treatments have the potential to obscure, alter, or destroy historic spatial qualities and trim features in violation of the Secretary of the Interior's (SOI) Standards for Rehabilitation. Careful planning will result in the retention of character-defining features and added savings: double or triple-glazing, additional basement or attic insulation, efficient HVAC systems and insulated ducting or piping, caulking, and top-quality weatherstripping are all cost-effective techniques to upgrade the energy efficiency of the overall building envelope with minimal impact to historic fabric. If insulation of wall surfaces is determined necessary after all other options have been explored, materials which provide the greatest R-value with the least impact should be used. The relationship between wall surfaces and historic wood base and window trim and plaster molding should not be altered.

Moisture Damage

National Park Service regulations 67.7(b) state that, in nearly all instances, the introduction of insulation into cavity walls of historic woodframe buildings where damage to historic fabric would result will be grounds for denial.

This includes:

- The use of "wet" foamed in-place insulation injected into walls (These types generally shrink during curing and therefore provide incomplete insulation).
- The use of any insulation without a proper vapor barrier on the warm side.

Vapor Barriers

Heated air inside a building can support more moisture than cold, outside winter air. This warm air passes through uninsulated wall cavities. The moisture vapor reaches dew point on the back side of exterior sheathing. Air movement within the uninsulated cavity causes this condensation to evaporate, and prevents dry rot. When wall cavities are insulated, moisture cannot evaporate, and is held within the sponge-like insulation where it can damage wood framing members; wet insulation material provides no insulation value. To avoid moisture damage and insure maximum thermal efficiency, a proper vapor barrier must be provided on the warm side of all insulation materials.

This barrier may be achieved as follows:

- a) Foil facing materials on fiberglass insulation.
- b) Kraft paper facing only if it is backed with a bituminous or tar-like coating. Kraft paper alone is not a vapor barrier.
- c) Polyethylene sheeting placed between the insulation and new plaster or sheetrock.
- d) "Vapor Barrier Paints" or other primers which provide a "perm rating" of 1.0 or less. These are applied to plaster or sheetrock wall and ceiling surfaces.

Additional Information Request

If insulation will occur, please specify or provide for each type:

1. Locations.
2. Methods of installation.
3. The increased thickness, in inches, of affected wall and ceiling surfaces.

4. The impact to existing plaster cornice, wainscott, and door, window, and base trim. If any of these wall or ceiling surfaces are to be moved, provide section drawings detailing before-and after-rehabilitation conditions.
5. The means of providing a proper vapor barrier.

For other weatherization techniques, please specify or provide:

6. Narrative description of techniques examined.
7. Overall building envelope energy loss calculations for all other weatherization techniques vs. insulation.

Please Note

Inappropriate weatherization or insulation techniques may result in project denial for tax credit or state/federal funding purposes. Please telephone the Historic Preservation Office at (609) 984-0176 if you require assistance.

Suggested Reading

The Old House Journal September 1980 and September 1981, entire issue.

Nielsen, Sally B., ed., *Insulating the Old House* Portland, Maine: Oreater Portland Landmarks, Inc. 165 State Street. Portland, Maine, 04101,1977

Smith, Baird M., *Preservation Briefs: 3, Conserving Energy in Historic Buildings*, Washington, DC. Heritage Conservation and Recreation Service, 1978

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