

PRESERVING GREEN

Air Sealing Your Old House

By **Katye T. Charette, LEED AP BD+C, Executive Director, U.S. Green Building Council, Maine Chapter**

AIR LEAKS, COMMON IN OLDER HOMES, contribute to a host of troubles. Among them, excessive heating and cooling costs, decreased durability, occupant discomfort, and indoor air quality issues. Sealing these leaks is a reliable way to ameliorate these problems.

Since air leakage occurs when outside air enters the home through uncontrolled and likely unknown openings, the first step to combatting the problem is to identify the source of the leaks. The most effective diagnostic tool for locating air leaks is a blower door test. During a blower door test, the home is depressurized so that the amount of air leakage and location of specific leaks can



be identified. Home energy professionals, like an energy auditor, routinely conduct blower door tests.

There are several notorious air sealing trouble spots of which to be aware. A visual/manual inspection of these trouble spots can help to identify leaks.

On the outside of your house, inspect all areas where two different building materials meet, including:

- all exterior corners
- outdoor water faucets
- where siding and chimneys meet
- areas where the foundation and the bottom of exterior brick or siding meet

Inside your home, inspect around the following areas for any cracks and gaps that could cause air leaks:

- electrical outlets and switch plates
- door and window frames
- electrical and gas service entrances
- baseboards
- weather stripping around doors
- fireplace dampers and attic hatches
- wall- or window-mounted air conditioners.
- cable TV and phone lines
- where dryer vents pass through walls
- vents and fans

Source: www.energystar.gov

Once air leaks are identified, the task of air sealing begins. Different sizes and types of air leaks call for different sealing strategies and tools. For small leaks and leaks at doors and windows, customary air sealing tools include caulk, spray foam, and weather stripping. For larger holes, a combination of plywood, drywall and/or rigid foam insulation is typically an effective strategy. For leaks that occur around chimneys and furnace flues, sheet metal and high-temperature caulk are necessary. (See www.energystar.gov for this and more information.) While many air sealing projects are successfully undertaken by homeowners themselves, hiring a qualified technician can improve the outcome.

In addition to air sealing, a home energy efficiency improvement plan should also include an evaluation of

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Historic Preservation has Proven Success in ECONOMIC DEVELOPMENT

PASSAGE OF THE TAX REFORM ACT OF 1976 was a watershed change that largely leveled the economic playing field for historic preservation nationwide, especially for the redevelopment and adaptive reuse of designated historic buildings. Since then, increased emphasis has been focused on the monetary benefits of building rehabilitation, for both communities and individual owners and investors. One indicator of the success of historic preservation ordinances and tax credits in stimulating new urban growth, when preservation regulations and financial incentives are integrated together within community planning and downtown revitalization strategies, is the comparative measurement of municipal property valuations before and after rehabilitation.

Greater Portland Landmarks has recently investigated the impact of these tools in preserving Portland's oldest historic commercial district, the Old Port (Waterfront) Historic District. This district was first designated as a National Register Historic District in 1974, and since enlarged. Federal tax incentives for rehabilitation of properties listed in the National Register, known in the profession as certified historic structures, were first made available in this district in 1977.

The table presented at right includes a sampling of both certified historic structures that were rehabilitated between 2001 and 2003 and new construction in the same district either on vacant infill sites or where non-contributing buildings were removed. This table illustrates two impor-

RISE IN VALUATIONS OF OLD PORT NATIONAL REGISTER HISTORIC DISTRICT 2003 - 2012

Building Name	Address	Pre-2003 Tax Assessor's Value Before Construction or Rehabilitation	2003 Tax Assessor's Value Upon Project Completion	April 2012 Tax Assessor's Value	2012 Property Taxes to the City of Portland
Hilton Garden Inn 2003	57 Commercial St	\$159,500	\$6,282,000	\$10,717,000	\$201,694
W.L. Blake Building (Mayhew Thomas Block) 1859/2001	73-93 Commercial St	\$842,320	\$3,560,760	\$5,907,729	\$111,081
Evie Cianchette Block 2000	145 Commercial St	\$1,155,300	\$3,408,903	\$6,091,400	\$114,640
William Moulton Block 1851	161 Commercial St	\$465,930	\$565,220	\$1,265,900	\$23,824
ShipWreck & Cargo 1951/2001	205-209 Commercial St	\$216,720	\$383,990	\$608,900	\$11,460
Ross & Lynch Block 1854	211 Commercial St	\$207,720	\$1,222,620	\$2,205,900	\$41,515
Chase Block 1853	217 Commercial St	\$308,340	\$1,585,920	\$2,637,500	\$49,638
Nathan Winslow Block 1852	225 Commercial St	\$414,000	\$1,126,550	\$2,043,400	\$38,457
Portland Packing Co. 1885	14-26 York St	\$256,725	\$1,605,960	\$2,248,600	\$42,319
Portland Pie Co.	51-53 York St	\$171,180	\$530,360	\$926,800	\$17,442

Sources: Assessor's Office, Sept. 2012 Online Database, City of Portland, ME; Portland Historic Preservation Program historic district files for the Old Port Historic District 2001 - 2003

tant trends: 1) the increase in valuations of individual historic properties from leveraged or tax credit-advantaged rehabilitation and 2) the more subtle, positive influence exerted on investor confidence by these rehabilitations as demonstrated by new development on either adjacent lots or elsewhere in the historic district. Not surprisingly, as other economic studies around the nation have shown since 1990, historic district designation and the related ordinances, appear to have significantly contributed to

what every real estate developer, investor or banker desires: greater predictability and a decrease in uncertainty. ■



Christopher Closs

Landmarks' Preservation Services Advisor
(207) 809-9103
ccloss@portlandlandmarks.org
Providing historic preservation technical assistance and tax credit pre-assessments.

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existing insulation and, most likely, adding insulation. It's important to air seal before insulating or adding insulation. The performance of insulation is greatly enhanced by proper air sealing. Insulation is not typically an air barrier and, thus, doesn't stop warm air from transferring from a home's living space into unconditioned spaces like the attic. This greatly reduces the insulation's R-Value (its ability to resist heat flow) and can cause problems like mold, mildew, and rot as warm, moist air from the home infiltrates the insulation. This can lead to unpleas-

ant and unhealthy indoor air quality. (For this and more information, see *Homeowner's Guide to Air Sealing* by Energy Circle and *Complete Home Evaluation Services*.)

Many homeowners express concern over sealing up a home too tightly. While this is rarely a real threat, the goal should be to tighten the home and ventilate purposefully. Typically, a programmable bath exhaust fan and/or kitchen exhaust fan can provide the ventilation required to maintain healthy air flow and air quality within a home. A home energy professional can help you to identify your home's specific ventilation needs.

The Maine Chapter of the U.S. Green Building Council, a 501c3 nonprofit membership organization, is committed to creating a sustainable built environment in Maine. Founded in 2003, USGBC ME is Maine's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. The Maine Chapter of the U.S. Green Building Council is pleased to join Greater Portland Landmarks in the effort to encourage energy efficiency in older buildings. ■

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