

Heritage Homes & the ecoENERGY Retrofit Program

A PERSPECTIVE FROM B.C.

Jennifer Iredale, MSc Historic Preservation
Presented at the Heritage Canada Foundation Annual Conference
September 2009

What impact do buildings have on climate change?

Buildings account for almost $\frac{1}{3}$ of Canada's annual greenhouse gas (GHG) emissions

Annually –

- **43%** of carbon emissions are from building operations
(Pew Center on Climate Change)
- **71%** of electricity goes to buildings
(USGBC)





WHERE TO BEGIN?



Hire an ecoENERGY Certified Energy Advisor

What is my motivation?

- to address climate change
- to reduce my heating bills
- to improve my thermal comfort at home
- to respond to regulations
- access to grants
- learn about green building and upgrades



First steps:

- home energy assessment
- and air leakage test <\$150

This provides you with:

- recommendations for energy upgrades and improvements

ENERGY EFFICIENT BUILDINGS STRATEGY: MORE ACTION, LESS ENERGY





Energy
assessor
installs the
'blower door'



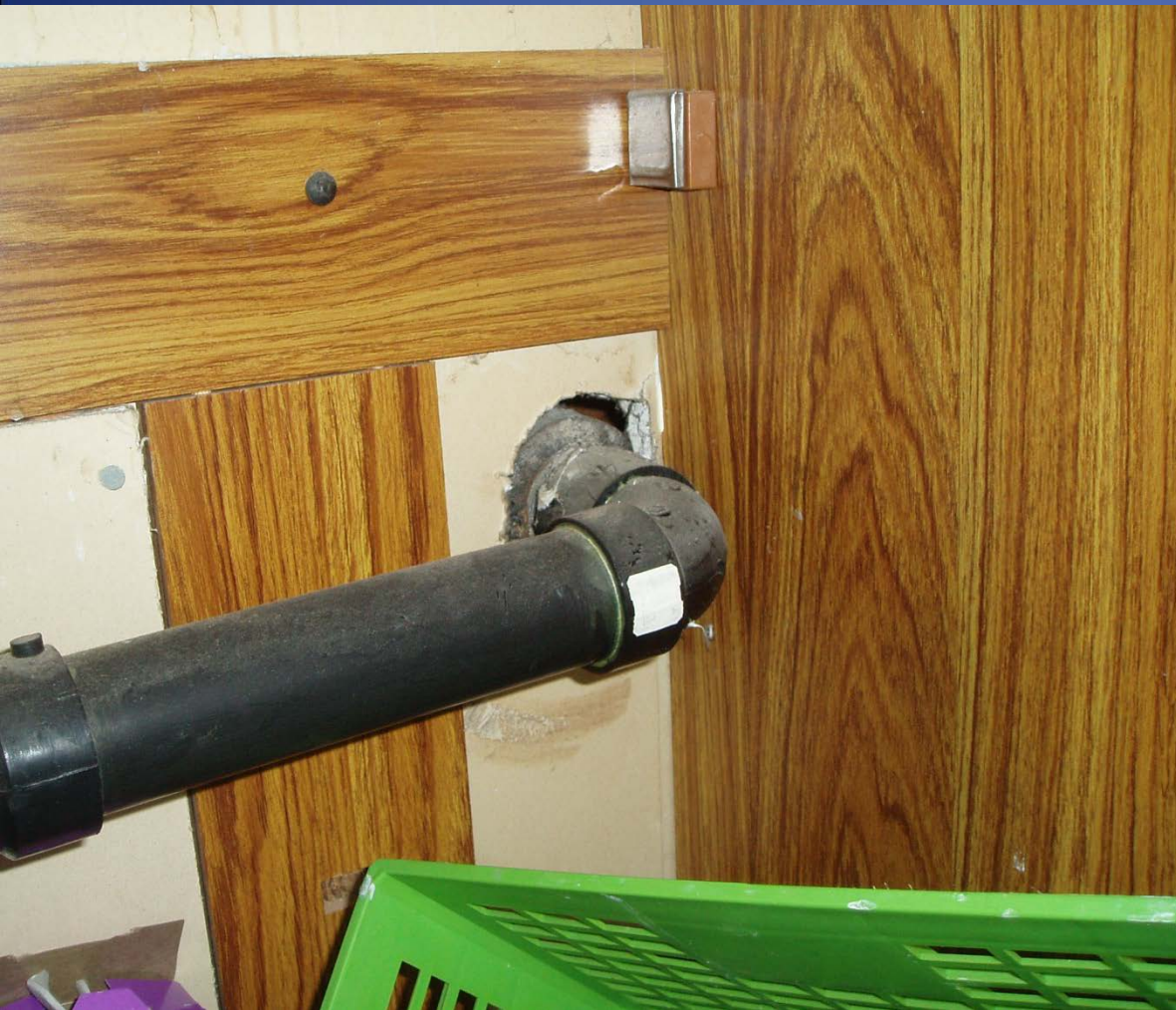


The blower door
creates a partial
vacuum inside
the house







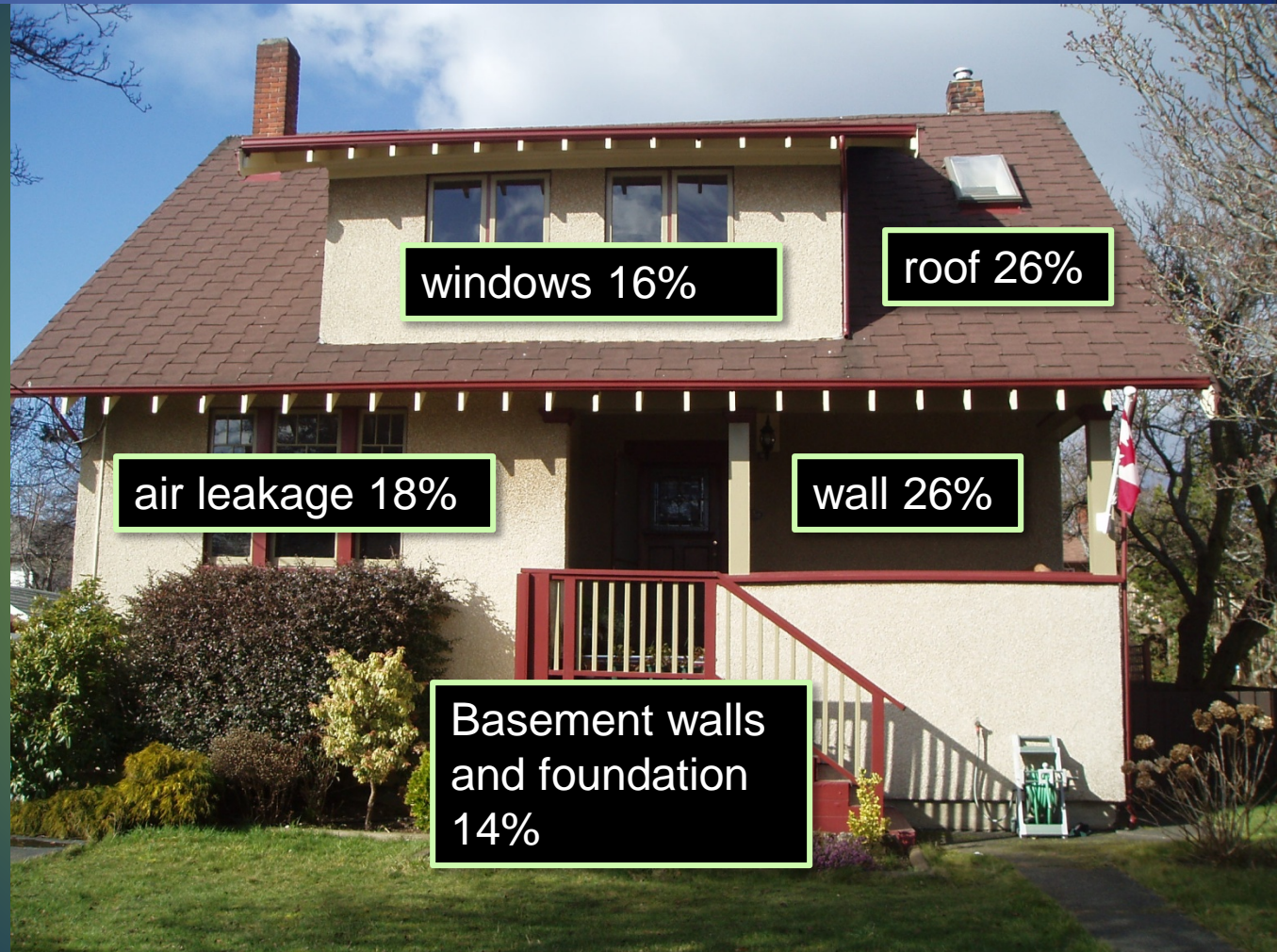




this is a
dusty, dirty
process



Typical heat loss
in a single-family
dwelling



Retrofits

These upgrades qualify for a federal grant up to a maximum total incentive value of \$5,000:

* One (1) star = lowest savings / five (5) stars = highest savings

HEATING SYSTEM

Install an ENERGY STAR® qualified air-source heat pump.

Federal Incentive Potential for Energy Savings * Potential Rating Improvement

\$400



16.3 points

COOLING SYSTEM (A/C)

Replace your central air conditioner system with an ENERGY STAR® qualified outdoor unit (condenser coil) and matched indoor evaporator coil (inside furnace or ductwork), which are rated at SEER 14 or more.

\$200

—

0 points

BASEMENT/CRAWL SPACE INSULATION

Increase the insulation value of 100% of the total crawlspace wall surface by a minimum of RSI 1.8 (R-10).

\$400



3.6 points

ATTIC/ROOF INSULATION

Increase the insulation value of your attic from the current level, which is evaluated at RSI 0.0 (R-0.0), to achieve a total minimum insulation value of RSI 8.8 (R-50).

\$173



2.9 points

AIR SEALING

Improve the air tightness of your house by 28 percent to achieve an air change rate per hour of 10.6 at a pressure of 50 Pa.

\$150



1.5 points

WINDOWS AND DOORS

Replace 11 window(s) / skylight(s) with models that are ENERGY STAR® qualified for climate zone B.

\$330



0.5 points

Insulation:
Where should
the home-owner
focus their
efforts?



MORE

LESS

SOME

Attic & Crawlspace Insulation

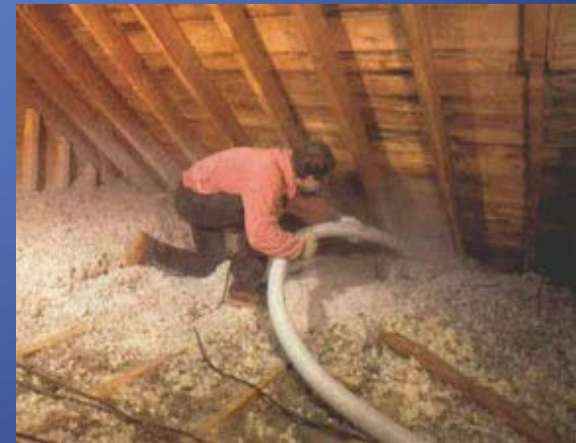
Energy Advisor

- Increase crawlspace by minimum of R-10
- Increase attic to R-50



Consider

- Add R-20 rigid foam insulation to concrete crawlspace walls
- Blow in R-28 dry cellulose insulation



Air Sealing

Energy Advisor

- Improve the air tightness by at least 25%

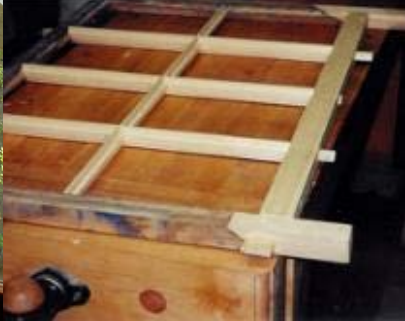


Consider

- Seal all major air leakages



Window Repairs



Storm Windows

Add to the sum total of the home's air sealing improvement - a maximum grant of \$240 (federal ecoENERGY) + \$250 (provincial LiveSmart BC)

REMEMBER: Homeowners need to be sure that the storms are ON the home and CLOSED during the follow up assessment to get credit for their air seal value... even if the follow up assessment is conducted in the summer!

More details at:

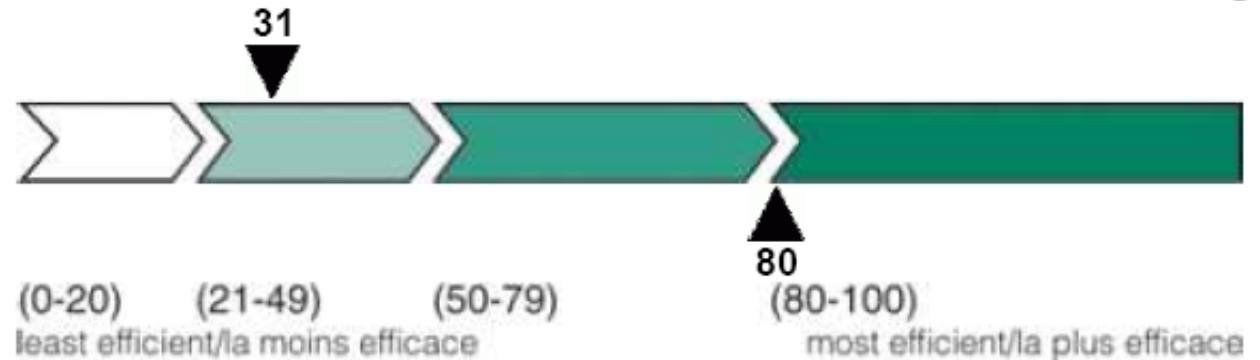
www.citygreen.ca/energy/ecoENERGY_grantchart.aspx#summary



The Emily Carr House

Energy Efficiency Evaluation Report

EnerGuide rating



- Your house currently rates 31.
- If you implement all of the recommendations, you could reduce your house's energy consumption by up to 71% and increase its energy efficiency rating to 80.
- The average energy efficiency rating for a house of this age in Canada is 44.
- By achieving 80, your home would rate in the top 5% of this group of houses.

Outcomes

Choose the energy upgrades that respect the character of the house.



Make those changes within 18 months and invite the Energy Assessor back to be eligible for provincial and federal rebates and incentives.



Green Building Code



Achieving EnerGuide 77 is alternative compliance

Heritage Branch Fact Sheets

Factsheet  Heritage Branch

Working with your Certified Energy Advisor (CEA)

 Using an audit ENERGY Certified Energy Advisor is an excellent way to assess the energy performance of your home.

What is a Certified Energy Advisor?

A Certified Energy Advisor is a trained and certified professional, often with a background in engineering, architecture or home inspection. An advisor can recommend improvements and help plan retrofits, as well as apply for grants on your behalf once you have completed retrofits and your home has been reassessed.

EnergyGuide rating



The EnergyGuide rating for the Emily Carr House, Victoria, B.C. Its current rating is 31. If all the recommended upgrades are done, it will achieve a rating of 60.

A blower door test, as seen in these images, will determine the air leakage rate of your home and help you locate major air leaks.

Reducing air leaks can be a simple and affordable way to make your home more energy efficient.

Before your evaluation, you may want to create a list of aesthetic values of your home that you want to preserve. This will help aid in choosing the most appropriate upgrades and ensure any character-defining elements remain untouched.

www.tca.gov.bc.ca/heritage

sheet  Heritage Branch

ing your traditional windows

energy efficiency of your windows, consider **REPLACING OR RESEALING** your windows.

has replace!

Older is almost always more environmentally friendly than modern windows are often harmful materials like vinyl. These require a lot of energy to recycle.

of upgrades your windows

ease of operation, faulty glazing, drafts, warping, rot or rot.

Aspects of traditional designs which take into account natural airflow, heat retention and cooling mean that buildings.

Numerous green rehabilitation of historic buildings also prove that where building energy performance is lacking, it can be improved in a way that is sensitive to historic fabric.

The windows of the Emily Carr House in Victoria, B.C. were rehabilitated in 1984 and contributed largely to the character of the building. Because of its designation as a National Historic Site, any improvements must preserve that character.

March 2009

Available at:

www.tca.gov.bc.ca/heritage/library/library.htm



Canada's
Historic Places

Lieux patrimoniaux
du Canada

www.historicplaces.ca