


**Energy Impacts of Envelope Upgrades to Existing Houses Through LiveSmart BC**

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**Overview**

- Introduction to LiveSmart BC
- Energy Assessment Tool
- Energy Performance of Single Family Houses in BC (consumption, EnerGuide rating, emission)
- Recommended Efficiency Upgrades
- Actual Upgrades Implemented
- Lessons Learned



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## Introduction to LiveSmart BC

- LiveSmart is the main component of the 2008 Energy Efficient Buildings Strategy
- Target to reduce energy demand of residential buildings by 20% by 2020
- Facilitates market transformation
  - consumer awareness and affordability
  - industry capacity and competency
- Supports future policies



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## Introduction to LiveSmart BC

- About 76,000 houses have completed energy assessments through Certified Energy Advisors
- More than 43 000 homes have completed energy upgrades
- The average incentive paid per home is \$1,200, including provincial and utility funds
- Current ecoENERGY rebates in addition
- BC has averaged a 75% “conversion rate”



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## Energy Assessment Methodology

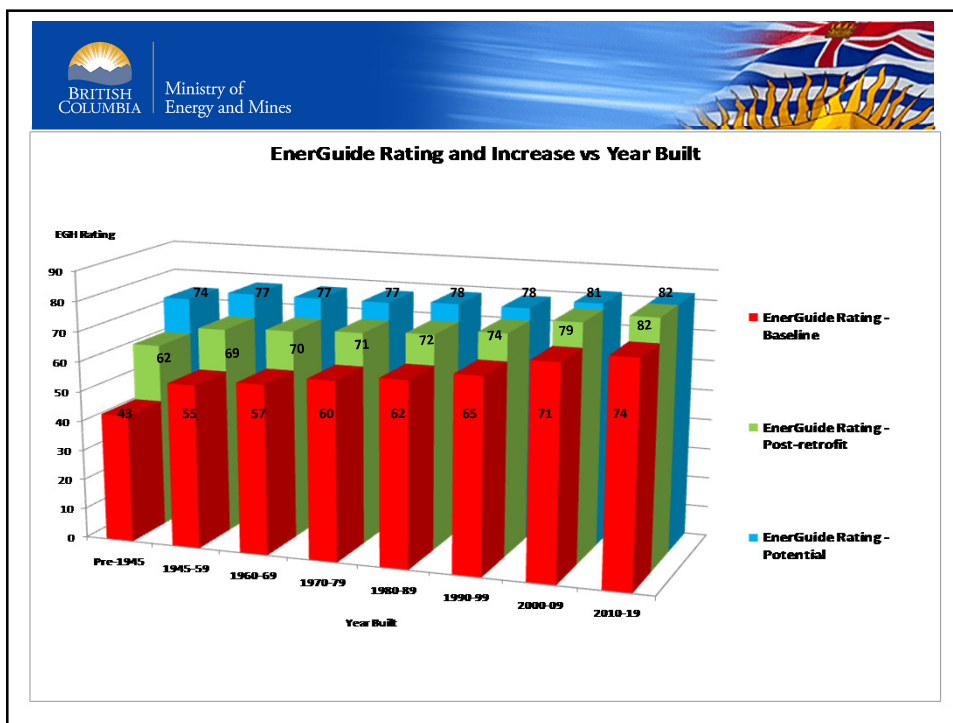
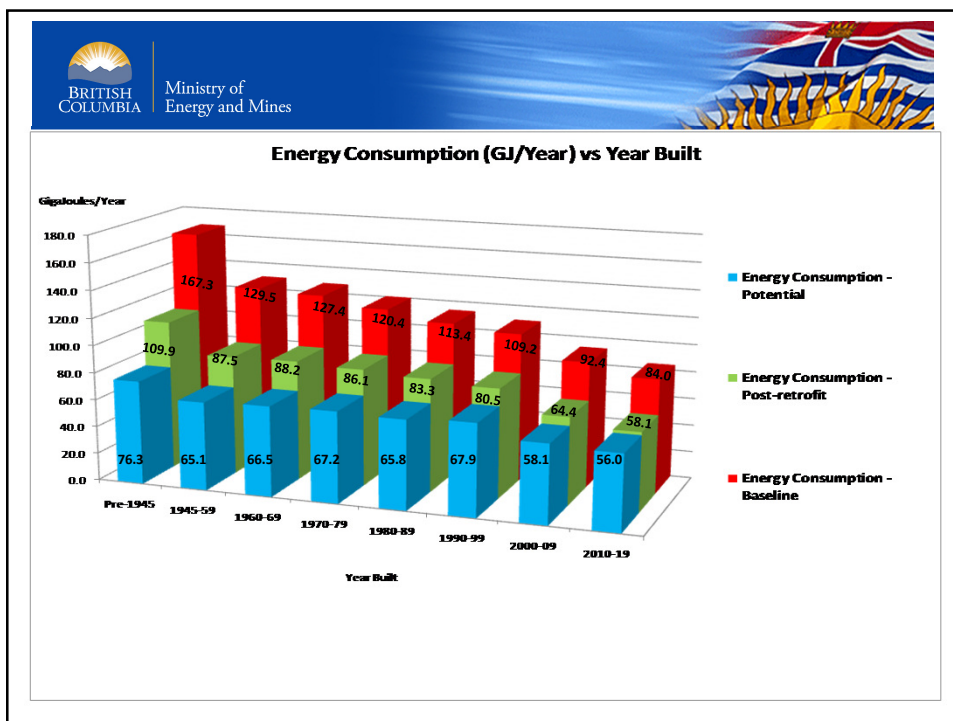
- Energy assessments include a visual survey, Hot2000 tool and blower door test @50pa
- Program evaluation: reconsidered standard operating conditions in Hot2000
  - Recommended a 30% reduction in energy use
  - Billing analysis underway (120 houses)
- NRCan database – average household demand
  - 89 GJ/yr in 2008 (including all segments)
  - 101 GJ/yr average between 1990-99

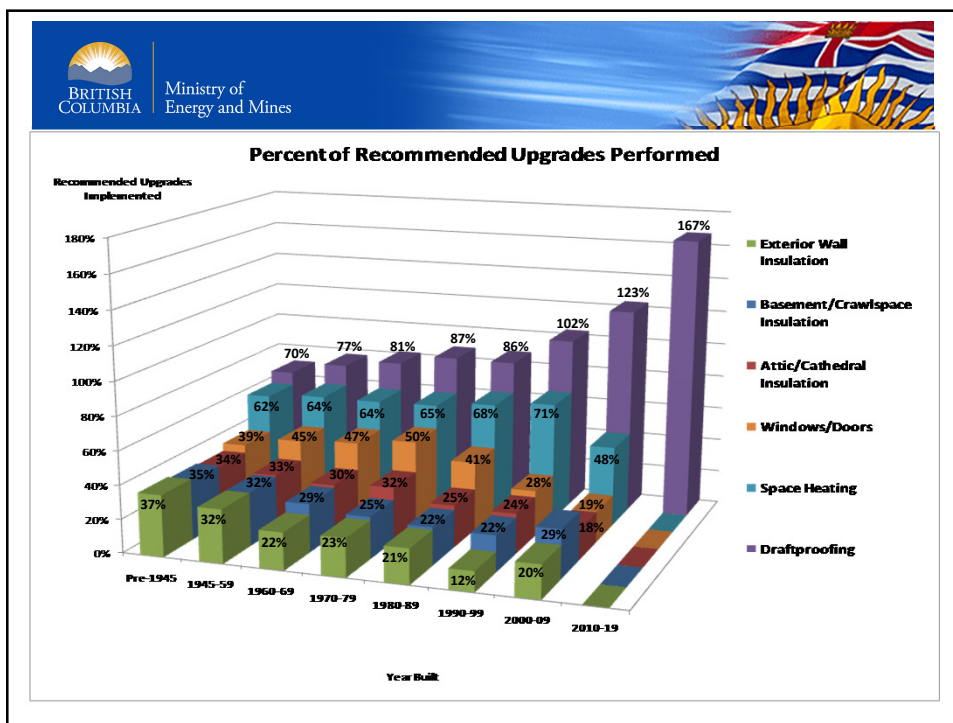
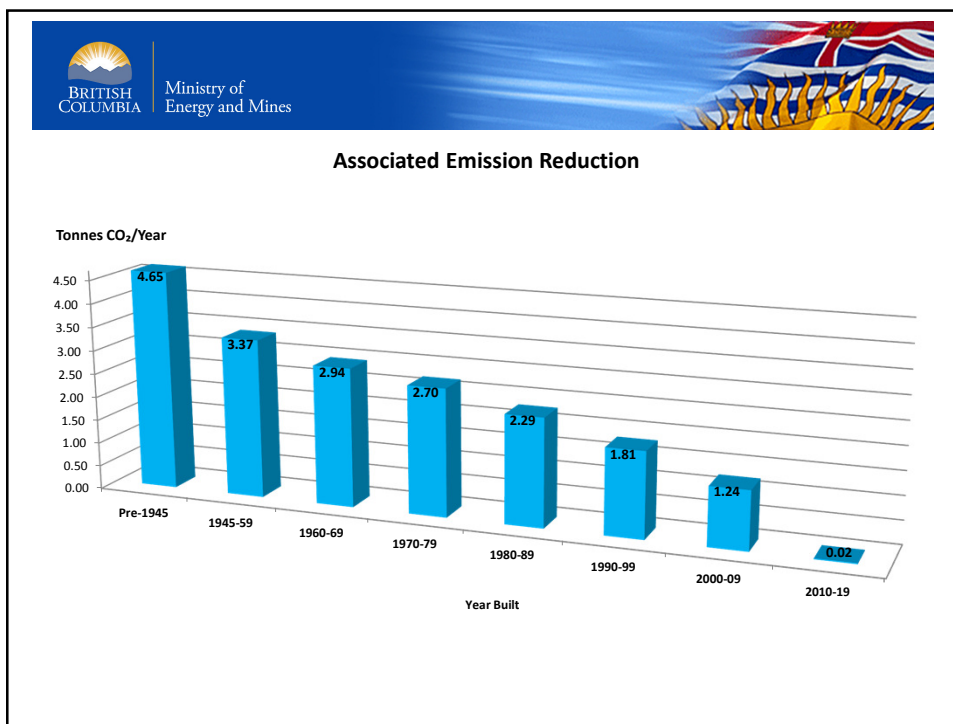


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## Energy Performance of Single Family Houses in BC

- Based on records from 57,000 single-family and row houses in BC, all regions
- Bulk of records are for houses constructed between 1960 and 1990
- Energy evaluations conducted between April 2007 and July 2011
- BC Government subsidized evaluations @\$150







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## Lessons Learned

- Hot2000 modelling over-estimates set-points and energy consumption
- Air-tightness improvements sometimes exceeded targeted levels (e.g., reduce from 10 ach to 4.5 ach @ 50pa)
- 20-25% of homeowners implemented the recommended insulation upgrades
  - Window upgrades: 35%
  - Heating system: 55%
  - Air tightness: 99%
- Contractor community is expected to address moisture issues associated with air tightness improvements