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Institute for Research in Construction

Bringing quality to the built environment

Energy-Efficient Hybrid Ventilation Systems for Residential Buildings

Objectives

To investigate means of improving the energy efficiency of ventilation for houses using a hybrid approach.

Background

Hybrid ventilation systems can be described as two-mode systems using different features of both passive and mechanical systems at different times of the day or season. Generally, they take advantage of natural ventilation when it is available and supplement it as necessary with mechanical ventilation. The challenge is to do this in an energy-efficient way while avoiding the typical disadvantages of natural ventilation – cold drafts and excessive ventilation in winter and inadequate ventilation in summer and shoulder seasons.

Statement of Work

- Review and compile available information on residential hybrid ventilation systems.
- Evaluate, using IRC's two-storey test house, the performance of passive, mechanical and hybrid systems in terms of energy, indoor air quality, moisture, comfort, ventilation rate and air distribution.

Expected Outcomes

Recommendations for energy-efficient, effective operation and automated control of hybrid residential ventilation systems.

Partners

- Panel on Energy Research and Development
- Natural Resources Canada
- Canada Mortgage and Housing Corporation

Start/Completion Dates

The project began in 2004 and is expected to be completed in 2008.

Project Managers

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For more information, see http://irc.nrc-cnrc.gc.ca/ie/iaq/factsheet8_e.html

NRC Two-Storey Research House – front

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