



Bringing quality  
to the  
built environment

## Material Emissions and Indoor Air Quality Modelling – Phase II

### Objectives

To develop knowledge and tools for estimating the concentrations of emissions from building materials and products used indoors. To develop guidelines for selecting materials and ventilation strategies to meet specific indoor air quality requirements.

### Background

The need for designers, builders and building managers to better understand what constitutes poor indoor air quality and what contributes to it led to a major research initiative undertaken by the National Research Council in 1997. The Phase I work produced a materials emission database encompassing 48 materials, and an indoor air quality simulation program. Phase II is focused on:

- creating the aforementioned knowledge and tools for estimating concentrations of emissions – specifically from volatile organic compounds (VOCs)
- providing reliable data for enhancing and developing indoor air quality guidelines for office and residential buildings.

### Statement of Work

- Assemble a target list of VOCs for which emission test results will be analyzed.
- Determine the ranges in concentrations of emissions from selected materials, which may result from either variability in the materials themselves or in the environment in which they are used;
- Expand the materials database from the original 48 materials (Phase I) to 60, and to re-analyze the existing data to cover as many VOCs on the target list as possible;
- Make the simulation program more user-friendly;
- Develop mass-transfer-based source models to predict emission rates over time.

### Outcomes

- Project reports, available from the IRC Web site.
- A software package: *Indoor Air Quality Emission Simulation Tool (IA-QUEST)*

### Partners

Public Works and Government Services Canada, Natural Resources Canada, Canada Mortgage and Housing Corporation, Health Canada, and an advisory committee consisting of 13 members.

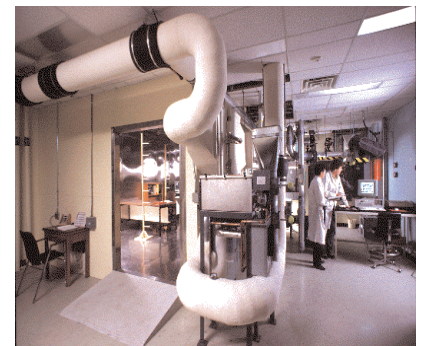
### Start/Completion Dates

The project (Phase II) began in 2002 and was completed in 2005.

### Project Manager

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For more information, see [http://irc.nrc-cnrc.gc.ca/ie/iaq/factsheet9\\_e.html](http://irc.nrc-cnrc.gc.ca/ie/iaq/factsheet9_e.html)



Full-Scale Emission Testing

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