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TOOLS & TECHNIQUES

House Built For Ventilation Research

A new two-storey house will play an important role in ventilation research at IRC. The 145.0 m^2 structure recently built on the National Research Council's Montreal Road campus will be the site of ventilation experiments studying the quality, exchange and movement of air in houses.

Initial experiments will focus on the air leakage characterization of the building envelope, including neutral pressure levels and component air leakage measurements. Using an automated tracer gas system and an on-site meteorology tower, studies of the wind effect on air infiltration will help improve the NRC air-infiltration model. (For more information on the NRC model, see *Building Performance News,* No. 4, October, 1989.) Studies of flue dynamics, attic ventilation and air-distribution system characteristics are planned as future projects.

The conventionally built house has a full basement, 2.4-m ceilings, 2-in. x 6-in. stud walls with a 6-mil. polyethylene vapour barrier with glass-fibre insulation. Use of roof trusses and a lack of permanent partitions in the second storey provide an unobstructed space measuring 9.1 m x 7.9 m x 2.4 m. Other features include double-glazed casement windows and a rear sliding glass patio door facing south.

The electric wiring is typical of residential homes, but the house has no water supply or plumbing. An electric furnace and a forced-air system, supplemented by portable electric baseboard heaters, provide heat. The horizontal runs of the ductwork are exposed so flow rates can be measured with various instruments. As well, the air distribution system has been built to easily accommodate alternative ventilation system components such as heat recovery devices. Three flue pipes leading from the basement to above the roof ridge line will allow studies of flue dynamics and their impact on air exchange throughout the entire house.

This new national facility is available for collaborative research with IRC scientists or for independent projects.

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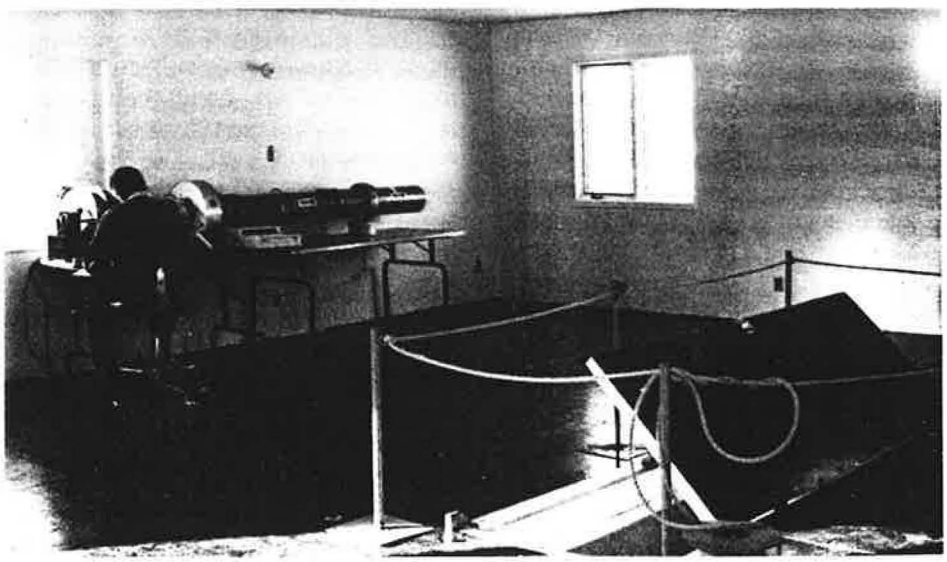

A scientist evaluates the air quality inside a two-storey house built for IRC's ventilation research studies.