

Ventilation in Existing Houses

by Richard Kadulski

When we consider indoor air quality, most of the time our focus is on new construction. When we build from scratch, it's as if we are dealing with a blank piece of paper. Dealing with healthy materials and proper ventilation strategies to ensure good indoor air quality is easy because all options are still open. Unfortunately, most of the housing stock that will be used for the next generation or two has already been built. People suffering ill effects from their home environment don't always have the means to make drastic changes: Building from scratch is not often an option, because owners either don't have the means to build new, or don't want to be uprooted from their community. Also, an aging population means it is also better to remedy existing buildings rather than force residents to move out.

Some simple steps can be taken to improve the home environment and indoor air quality of a standard home without resorting to drastic measures. To make my point, I'd like to use an example I had to deal with in North Vancouver, BC.

The 1200 square foot bungalow on a basement half a storey into the ground was built around 1960. It is a typical design for the era, and examples like it can be found throughout North America. The house has two fireplaces on an exterior wall, one in the living on the main floor, and one in the basement. Both fireplaces have been equipped with gas logs, but only one is used occasionally. The windows are all single glazed, with either wood frame casements or aluminum frame sliders - none are airtight. Despite the lack of airtightness, the relatively mild climate and the occupants' insistence on keeping all windows closed meant that there was very little air change in the house.

The occupants are an old couple. As often happens with aging, people start to lose control over their bodily functions. Incontinence is a fact - and the reason many seniors' homes have an unpleasant odour. In addition, because of moving less, being comfortable means keeping indoor temperatures higher and windows shut, reducing natural ventilation and drafts. The result is higher levels of stale air. Smells are bottled up within the house, creating an unpleasant environment. This

was the condition in the North Vancouver house some six years ago. When you entered the house, there was a noticeable, unpleasant odour. But the house was not airtight.

I installed a quiet Panasonic bathroom fan vented to the exterior. It was set up with 24-hour clock timer control, but programmed to operate continuously. Because the house was not airtight, depressurization was not an issue. Within a day, the results were obvious. The indoor air was fresh.

Yes, there may be an energy penalty with the exhaust only system. However, at a continuous 50-cfm air flow, the total volumes exchanged are relatively small, and the superior indoor air quality more than compensates for the price of the energy used.

This is an example of a simple solution to a serious indoor air quality problem. It may not be adequate in all cases, but it shows how simple a first step can be. When considering this type of solution to indoor air quality, make sure that the exhaust fan will not create enough negative pressure to affect the venting of combustion appliances such as fuel fired water heaters, furnaces, or fireplaces.

This example points out that costly diagnostic testing is not always necessary where there are concerns about indoor air quality. A functional mechanical ventilation strategy might well be the solution to most of the problems.

Solplan Review Back issues

A limited number of back issues are available, at a special price of \$5.50 each (plus 7% GST).

Bundle special: a random selection of back issues (minimum 22 copies) are available for only \$60.00 (plus 7% GST)

Solplan Review

Box 86627

North Vancouver, BC V7L 4L2

e-mail: solplan@direct.ca