

Oil Combustion Equipment & Ventilation Requirements: A Case Study; Part 2-Conclusion

The following is a continuation of the case appearing in the December 98 Issue. The authors would like to thank those who called and wrote in response to our request for opinions on the first segment.

REVIEW:

A permit for a new home was issued based on a ventilation design as follows:

- b) Positive Venting Induced Draft
- a) or b) appliances only, no solid fuel
- Type I - Exhaust Only Forced Air System

At the time of final inspection, the actual furnace installed was a natural draft oil furnace. ("A-Vent" chimney and barometric damper).

DISCUSSION:

On re-inspection (with the assistance of an HRAI-Certified Ventilation Designer) it was noted that:

a) The furnace is not new: The OBC makes allowances for equipment reuse in a new building, however the requirements of 2.2.1.2.(1) must be met: *Unless otherwise specified,.....*
... appliances and equipment may be reused when they meet the requirements of this Code for new materials and are satisfactory for the intended use.

b) Barometric damper exists: The installation does not therefore meet the requirements of 9.32.3.1.(1)(a). In addition, the appliance is connected to a chimney and therefore falls under 9.32.3.1.(1)(c) as a *natural draft* appliance.

Note: *Although this appliance is connected to a "A Vent", it is not exempt from 9.32.3.1.(1)c. In fact, an "A Vent" is simply a type of chimney as defined in the OBC.*

c) Outside side air intake not directly connected: As for b) above, this means that the installation does meet 9.32.3.1.(1)(a).

The combined effect of b) and c) above are such that the house must be classified as Type III according to 9.32.3.1.(2)(c).

A Type III house is required to have a Part 6 Ventilation Design (sentence 9.32.3.2.(1). In Part 6 (see sentences 6.2.1.1., and 6.2.2.1.(3)) CSA F326 is the appropriate *Good Engineering Practice* document that would applied.

d) Installation Instructions could not be produced: This raises the issue of whether or not the installation conformed to applicable fuel-fired appliance regulations. The Building Official had no means to verify this. Although not directly referenced in the OBC, it is the authors' opinion that the *Ontario Energy Act, Fuel Safety Regulations (CSA-B139 for Oil-Burning equipment)* constitute "Other Applicable Law".

e) House Depressurization is 8 Pa according to CSA F326 test. The house exceeds the maximum allowable depressurization allowed by CSA-F326 for houses with *natural draft* appliances (5 pa). This indicates that system could not be accepted "as-is" using Part 6 Design Standards, and that the potential for combustion back-spillage exists.

CONCLUSION:

The house did not comply with the ventilation requirements of the OBC. In addition, it could not be determined that the furnace installation conformed to "other applicable law" with respect to the *Ontario Energy Act*.

WHAT CAN THE OWNER DO TO RESOLVE THE SITUATION?

1) Install a new, direct vent or mechanically induced draft furnace: This is probably the simplest solution. The system would then conform to the requirements for a Type I house under section 9.32. according to the information submitted with the original permit application.

2) Carry out a Part 6 Design:

Such a design would be required to be completed by a person who as been certified by HRAI as a Ventilation Designer. The HRAI-issued certification card for such an individual would have the code "VENTD" on it in addition to the code "VENTI". Such a person would also be listed as a "Designer" on the list of Certified Ventilation Installers/Designers available from HRAI.



It is worthwhile to note what to look for in such a design:

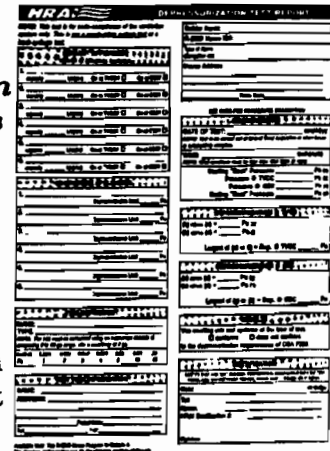
a) The design will probably involve some sort of motorized make-up air damper, or an HRV, or both. We can say this because the house failed the CSA F326 depressurization test so we know that it will need make-up air, or replacement of some exhaust type ventilation with balanced ventilation. If used the motorized damper would probably be interlocked with the dryer or other major exhaust appliances (or more than one) and could also be interlocked to the furnace burner.

b) The design should be supported by a completed copy of the Form called the **HRAI Ventilation Record**. This form, when completed, can be taken as a **Performance Certificate** for the system. It should be noted that CSA F326 requires that qualified person actually go to the house, review the system and test all of it's functions



including a physical test of the actual airflows.

c) There should also be an **HRAI Depressurization Test Report**. This form, when completed, is a certificate attesting to the fact that the house and ventilation system as installed do not create more than a 5 Pa negative pressure under certain conditions.



As we can see, option 1) is quite a bit simpler, but option 2) is available for those situations where the owner wants to use the natural draft furnace.

You should be aware of the following resources:

HRAI - Designer lists, Ventilation Record, and Depressurization Test forms.
 5045 Orbitor Dr. Bldg 11, Suite 300
 Mississauga, Ont. L4W 4Y4
 Tel: 905-602-4700 Tel: 800-267-2231
 Fax: 905-602-1197 Web: www.hrai.ca

TSSA - Technical Standards and Safety Authority: Verification of Qualification for installers regulated under the Ontario Energy Act.
 4th Flr, West Tower, 3300 Bloor St. W.
 Tel: 416-325-0211 Toronto, Ont. M8X-2X4

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