Residential Ventilation Issues
by Dara Bowser & Bob Allison

Oil Combustion Equipment & Ventilation Requirements: *A Case Study*

The following is a description of a recent case which occurred in a rural Ontario Municipality.

A permit for a new home on a farm property was issued. It was intended as the replacement for the existing house, which was to be demolished. At the time of permit application, the ventilation information was provided on the OBOA/HRAI Residential Mechanical Design Summary Form. The form stated that the ventilation system was b) Positive Venting Induced Draft a) or b) appliances only, no solid fuel Type I - Exhaust Only Forced Air System.

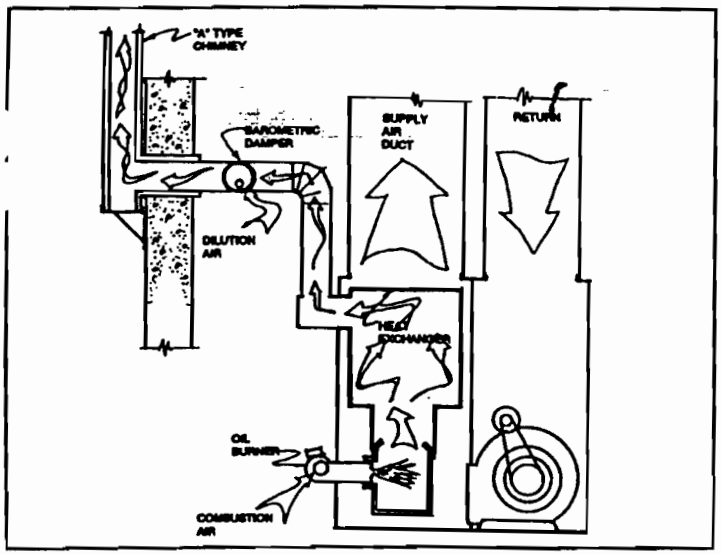

Figure 1: Natural Draft - This is traditional type of oil appliance installation. It is connected to a chimney and always considered to be type *natural draft* as described in 9.32.3.1(1)(c).

At the time of final inspection, the municipal building inspector noted that the actual furnace installed was an oil furnace, connected to a "A-Vent" chimney installed on the outside of the building, similar to that shown in figure 1. The building inspector noted that the flue pipe was equipped with a barometric damper.

The inspector noted that the furnace did not meet the requirements of OBC sentence 9.32. 3.1.(1) which defines type (b) appliances as: mechanically vented induced draft whereby combustion air is supplied from within the building envelope and the products of combustion are positively conveyed to the outdoors by means of a dedicated sealed vent. Additionally, natural draft appliances (type c) are defined in the same sentence as: ***natural draft whereby combustion air is supplied from inside the building envelope and the products of combustion are conveyed to the outdoors through a chimney or Type B Vent.***

Accordingly, no occupancy permit was granted. The furnace installer was appraised of the situation and proceeded to seek the advice of a qualified ventilation consultant (HRAI certified Ventilation Designer). According to the consultant, (who did not attend the site), one of the options available to the installer would be to convert the furnace to a direct-vent (sealed combustion) configuration, if that option was available for the particular furnace. According to OBC Sentence 9.32.3.1.(1) Direct vent (type a) is defined as: ***direct vented whereby the combustion air is supplied directly from outdoors to the combustion chamber via a sealed passageway, and the products of combustion are exhausted directly outdoors through an independent sealed vent.***

The installer then proceeded to make some modifications to the installation and recalled the inspector for re-inspection.

The inspector, noting that the installer was relying on the advice of a consultant, and not being an expert in oil burning appliances, requested that the consultant also be present at the time of final inspection and provide a certificate attesting to compliance with the OBC.

During the re-inspection, the following items were noted:

a)The furnace was not new. The owner explained that in fact it was from the old house and they had

decided to install it in the new house because it appeared to be serviceable.

b)The barometric damper had not been removed from the flue pipe. This did not satisfy the requirements of 9.32.3.1.(1) a) in that the exhaust vent was not sealed.

c)An outside air intake had been installed, but it was not directly connected to the combustion chamber as is required by 9.32.3.1(1)a).

d)The owner or the installer could not produce the installation instructions for the furnace confirming that the revised venting configuration was approved by the manufacturer of the furnace. e)A depressurization test was conducted according to the CSA F326 ventilation standard and it was found that the house depressurization was 8 Pa. This is higher than the 5 Pa maximum permitted by CSA F326 for "Natural Draft" installations, indicating that there was the potential for flue gas spillage due to the operation of the Exhaust Only Ventilation System installed in the building.

We would be interested in hearing what you would do next to resolve the situation. Fax your opinion to Bob Allison at 519-587-5554.

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OPINION

While discussing this topic is also useful to note that the Ontario Energy Act requires that all oil-fuel systems be installed by a licensed mechanic. There is not however, any system of assuring that the installer is actually so certified, other than investigations by the newly formed Technical Standards m& Safety Authority (Former Fuel Safety Branch) who will investigate on a "complaints made" basis. Most Municipal Building departments do not ask for proof of oil-burner certification.

The requirements of CSA B-139 (the oil appliance installation code) are not called up in the OBC. Presumably this is because the Ontario Energy Act exists to cover this requirement; however if there is no enforcement on a routine basis, we wonder whether proof of the installers license should be required to ensure that the installation complies with "Other Applicable Law".