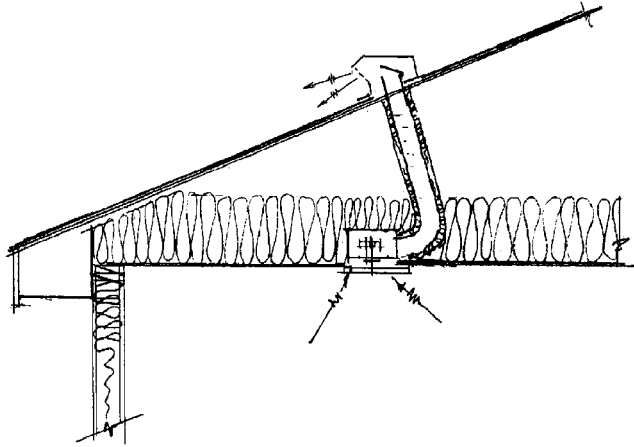


CLEARING THE AIR

Residential Ventilation Issues by Dara Bowser & Bob Allison

Are Exhaust Ducts permitted to Terminate Inside Attics or Soffits?

For many years it was the practice for kitchen and bath fan installers to lead the exhaust ducts for these fans into the attic and terminate them. The exhaust from the fans was supposed to dissipate into the attic, which was presumed to be well ventilated. In some cases, the fan installer would lead the exhaust duct (insulated we hope) over to a roof ventilator so that the exhaust was "close to" an attic opening. In some areas, this has been modified to a practice whereby the **insulated** exhaust duct from the fan (usually a bathroom fan) is lead to the soffit of the roof and terminated inside the soffit. The theory of operation is that if the soffit is ventilated, then the exhaust from the fan will diffuse out of the perforations.



In fact, this is a problem because moisture from the exhaust fan will condense inside the cold duct or in the cold soffit cavity or on the underside of the roof sheathing and eventually deteriorate the wood. In extreme cases, it can run-back inside the house or wall. In very cold climates there would be damage due to frost and ice accumulation. The reason that this has not been much of a problem in the past is twofold: #1 fans didn't get used very much because they were noisy. #2 some fans didn't move very much air even if they were used for a significant amount of time.

In fact, the Ontario Building Code requires that all exhaust ducts go directly to the outside (*Do not pass Go, do not collect \$200*). If the insulated duct goes up into an attic it must continue out through the roof or a gable end. If it goes to the soffit, it must not terminate in the soffit cavity, it must be

insulated, go to the face of the soffit through a hood and must not reduce the R value of the insulation above the inner surface of the exterior wall. Even here, there may be problems. If the soffit is ventilated, the exhaust from the fan can re-enter the attic, particularly if it is on the windward side. If this is done, it is good practice to install non-ventilated soffit at least 2 metres on each side of the exhaust outlet.

References:

OBC 9.32.3.10.(2) Exhaust ducts shall not discharge into heated or unheated enclosed spaces

OBC 9.32.3.10.(3) Duct insulation.....

OBC 9 25.2.1.(8).Insulation near eaves....

ONHWP Redbook: page D12, last sentence: Ducts must not terminate in closed spaces such as crawl spaces, attics, soffits or garages.

OBOA Ventilation Manual page 60, and pages 135 (bottom) and page 136 (top). The page 135-136 reference is quite clear about ducts to soffits which do not go completely outside.

HRAI Ventilation manual page 215, bottom of page 77, top of page 78. (Not as clear as OBOA manual reference)

Our thanks to Paul Nixon from the City of Kingston for suggesting this topic.

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NOTE: The opinions expressed in this column are those of the writers and do not reflect the views of HRAI, OBOA or any other agency, corporation or individual.