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### An example of the entry of snow through an attic vent

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# NATIONAL RESEARCH COUNCIL OF CANADA

## DIVISION OF BUILDING RESEARCH

No.

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# TECHNICAL NOTE

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CHECKED BY

APPROVED BY NBH

DATE

October 1963

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PREPARED FOR

record purposes

SUBJECT

AN EXAMPLE OF THE ENTRY OF SNOW THROUGH AN ATTIC VENT

This Note has been prepared to record the details of a case of the entry of a substantial amount of snow through an attic vent. The house in which the vent was installed is owned by Mr. D. G. Robertson. Details of the vent are shown in Figure 1. Two photographs (Figures 2 and 3) are included showing the house and a view of the interior of its attic taken approximately one week after the snow storm which caused the problem. By that time much of the snow in the attic had been removed. Melting of the snow resulted in considerable damage to the ceiling finish.

The house is located on the east side of the Merivale Road in Ottawa, Ontario. Buildings in the area were not closely spaced and there were few trees to provide shelter. The house therefore is in an exposed location in respect to wind.

### VENTING

Two roof vents were installed at the ridge and no venting was provided at the eaves. The garage ceiling was not enclosed, however, and it is directly connected to the attic space above the living area. The vents are adjustable for roof slope and are formed from aluminum sheet. This type of vent is most commonly used on the gable ends of houses at the roof peak.

### CLIMATE

The presence of snow in the attic was first noted on 31 December 1959 when water started to drip through the ceiling of the hallway which is located centrally in the house. The snow storm of four days' duration began on

27 December with snowfalls of 1.0 in., 7.4 in., 3.5 in. and 2.1 in. The snow was accompanied by strong winds up to 20 mph from the east to northeast. Maximum temperatures for the four days were 25, 25, 23 and 25°F respectively.

### DISCUSSION

The provision of weatherproof ridge vents for cottage roofs has always presented a problem because it is difficult to install any type of vent without altering the natural lines of the roof. One alternative is to install a hooded vent on the sloping roof surface near the ridge. Such vents are seldom attractive and must be fairly large to provide the recommended area for venting.

There are many houses with a ridge venting arrangement similar to that reported but in the writers' knowledge this is the first detailed report received by the Division of Building Research of a serious problem with such an installation. One might assume, however, from an examination of the vent openings in relation to the sloping roof surface, that an arrangement of this type would be prone to the entry of wind-driven snow, and rain leakage in extreme conditions. Perhaps the only conclusion that should be drawn from this report is that an arrangement similar to that illustrated should be avoided in buildings in exposed locations.

The tendency to leakage by such an arrangement might be reduced by an alteration in the design of vents. An increase in the weather lap might provide some improvement. It is interesting to note that vents used in this case appear to meet the requirements of C.S.A. Specification A93-1961, Aluminum Vents for Housing.

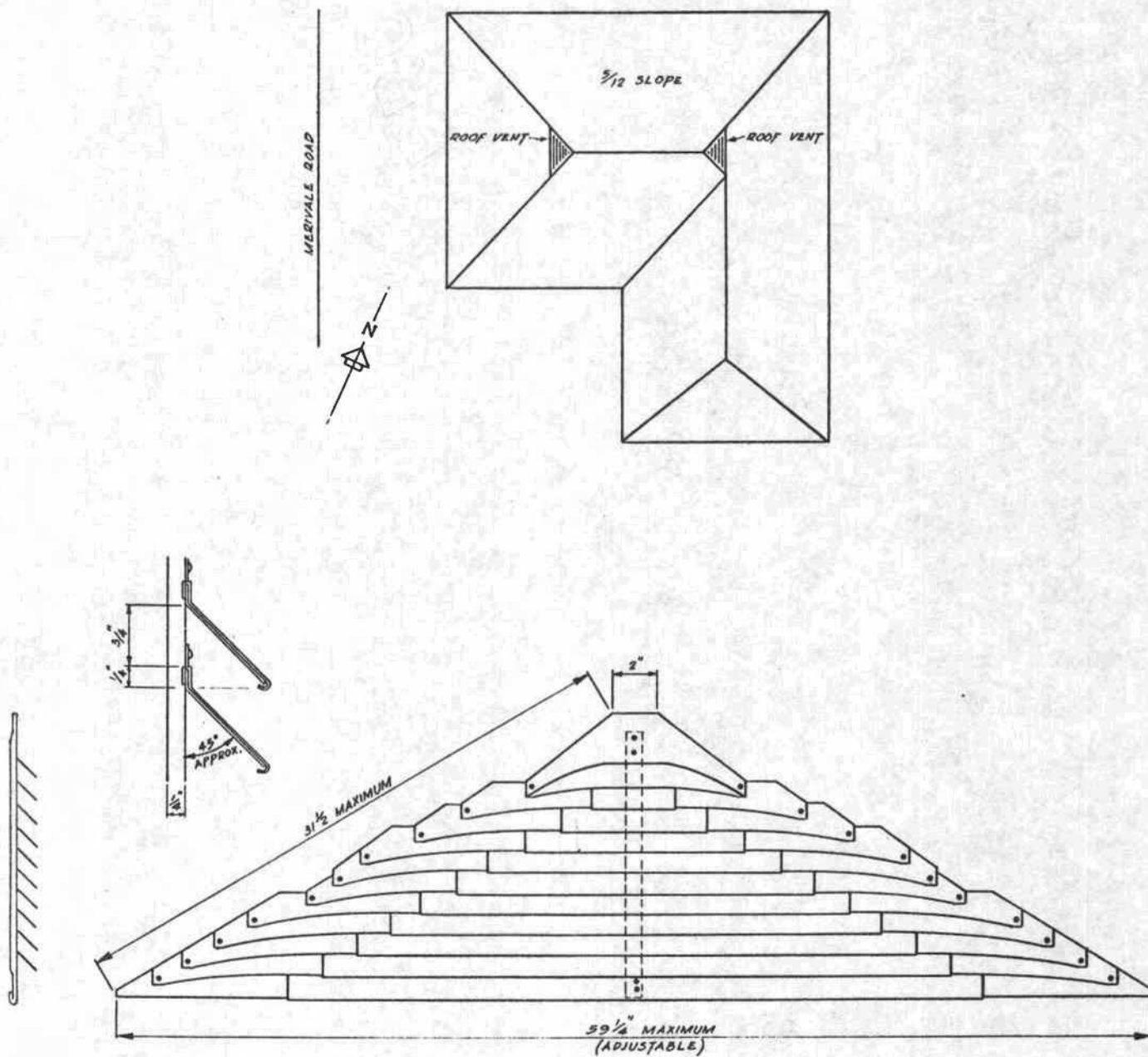


Figure 1

DETAIL OF ROOF VENT

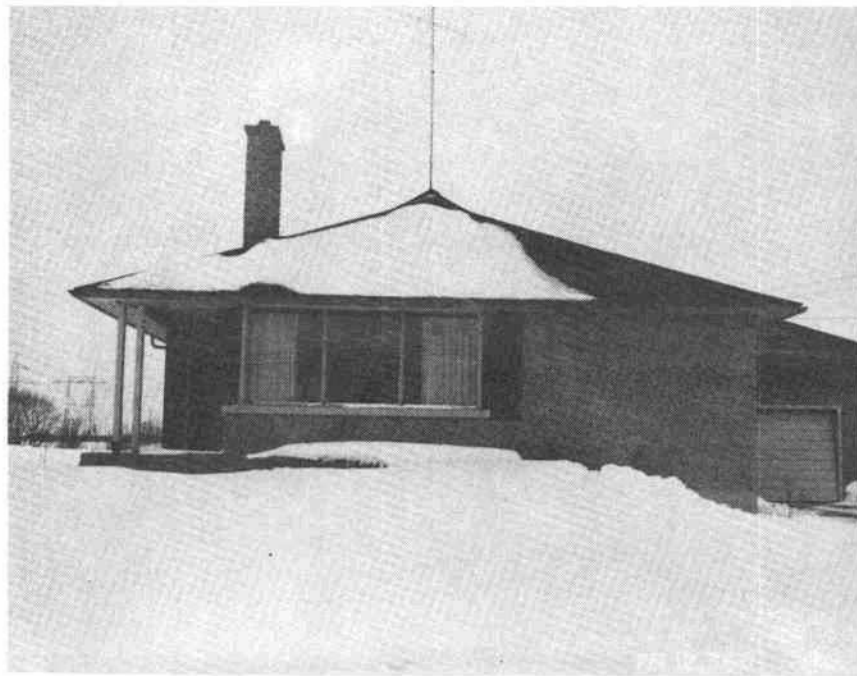


Figure 2

View of house from west side showing snowload from wind action over roof. Snow entered through opposite vent where roof is blown clear of snow.



Figure 3

Interior of attic space showing a part of accumulated snow. Picture taken about a week after snow storm.