ATTIC VENTILATION

BUILDING DEPARTMENT
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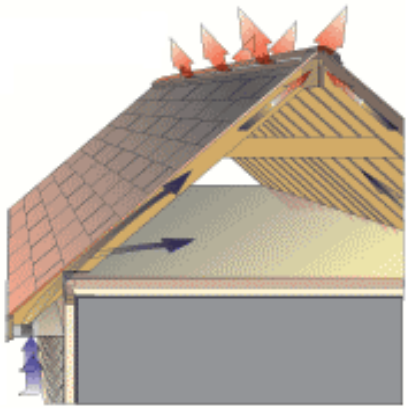


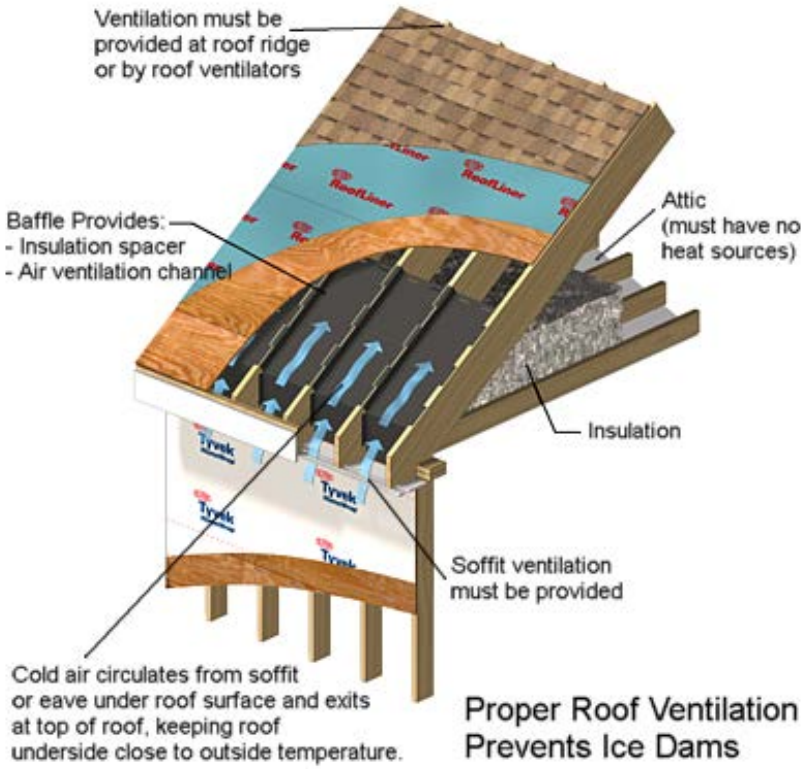
This handout is intended only as a guide and is based in part on the 2015 Minnesota Residential Code, Minnetrista City ordinances, and good building practice. While every attempt has been made to insure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or permit applicant. For specific questions regarding code requirements, refer to the applicable codes or contact your local Building Department.

BASIC VENTILATION REQUIREMENTS

Attic ventilation is required when attic spaces are ***enclosed*** with a ceiling membrane or when rafter spaces have ceiling finishes directly applied to the underside of the rafter. Ventilation openings must be designed to protect against the entry of rain or snow. Ventilation openings must be at least $^{1}/_{16}$ inch minimum to ¼ inch maximum. Openings having a least dimension larger than ¼ inch must be provided with corrosion resistant screening. Ventilation openings **must open directly to outside air**.

The amount of net free vent area must be at least $^{1}/_{150}$ of the area of the vented space. The amount of ventilating area may be reduced to $^{1}/_{300}$ of the area vented provide (a) that a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling and (b) at least 40% and not more than 50% of the required ventilating area is located in the upper portion of the attic or rafter space not more than 3 feet below the ridge with the balance of the required ventilation in the eaves.

A minimum of ***one-inch*** **of air space** must be provided between the insulation and roof sheathing.

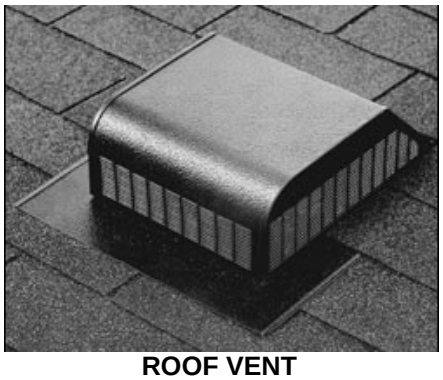


Proper Roof Ventilation Prevents Ice Dams

VARIOUS TYPES OF MANUFACTURED VENT PRODUCTS

SOFFIT VENTS

GABLE VENT



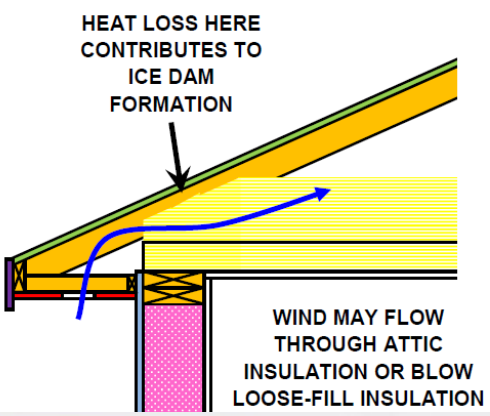
ROOF VENT

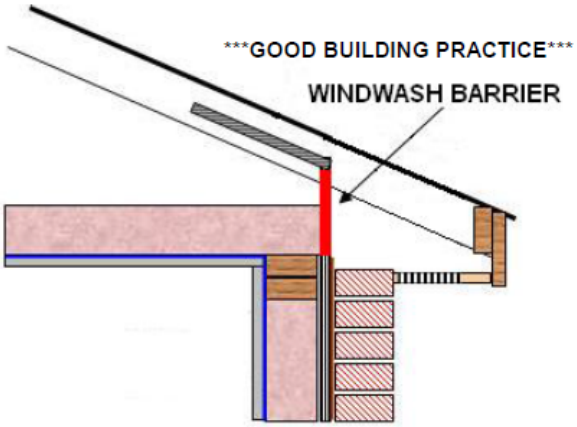
ROOF VENT

RIDGE VENT

RIDGE VENT

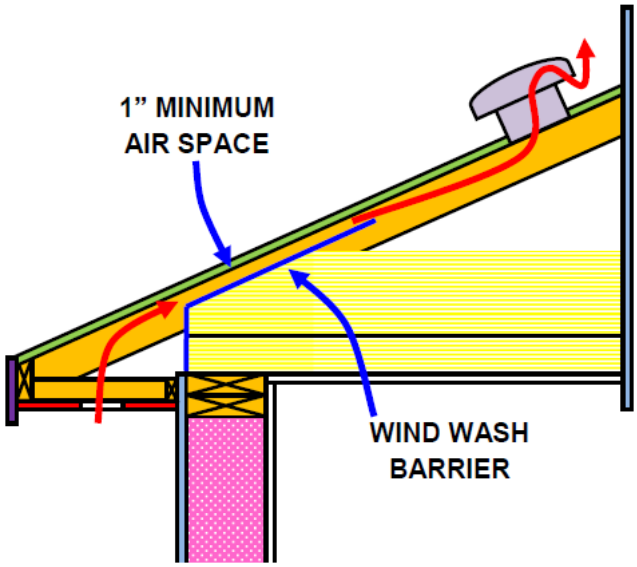
WIND WASH BARRIERS / VENT CHUTES

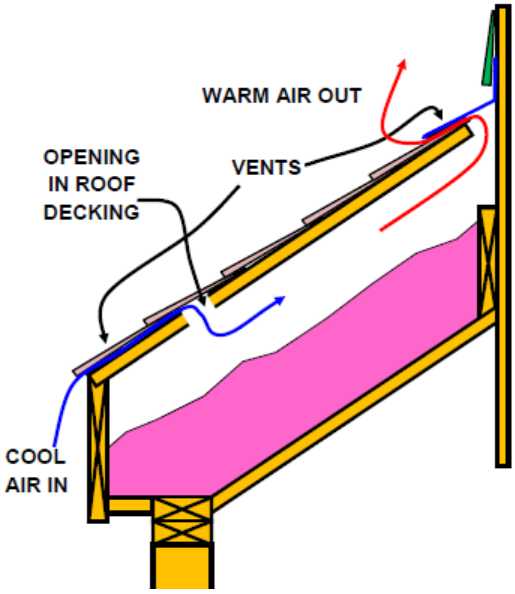




VENTILATION FOR TYPE SHED ROOFS

AIR MUST BE BROUGHT INTO THE ATTIC OR RAFTER SPACE IN THE LOWER PORTION OF THE ROOF EITHER THROUGH SOFFIT VENTS OR BY SOME OTHER MEANS





AIR MUST BE EXHAUSTED AT THE TOP OF THE ROOF.
EACH RAFTER SPACE MUST BE VENTILATED.

HOT ROOFS / UNVENTED ATTIC SPACES

"Hot roofs" are permitted by the code with certain limitations. ***Primary of those is that the manufacturer of the roofing and roof sheathing must, in their written installation instructions, permit the application of their product on a roof with an unvented attic***. Copies of the appropriate documentation are required with plan submittal.

R806.5 Unvented attic and unvented enclosed rafter assemblies. *Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) and unvented enclosed rafter assemblies (spaces between ceilings that are applied directly to the underside of roof framing members/rafters and the structural roof sheathing at the top of the roof framing members/rafters) shall be permitted if all the following conditions are met:*

1. The unvented attic space is completely contained within the building thermal envelope.

2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed rafter assembly.

3. Where wood shingles or shakes are used, a minimum $^{1}/_{4}$- inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.

4. Any air-impermeable insulation shall be a Class II vapor retarder, or shall have a Class III vapor retarder coating or covering in direct contact with the underside of the insulation.

5. Either Items 5.1, 5.2 or 5.3 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

5.1. Air-impermeable insulation only. Insulation shall be applied in direct contact with the underside of the structural roof sheathing.

5.2. Air-permeable insulation only. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified in Table R806.5 for condensation control.

5.3. Air-impermeable and air-permeable insulation. The air-impermeable insulation shall be applied in direct contact with the underside of the structural roof sheathing as specified in Table R806.5 for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

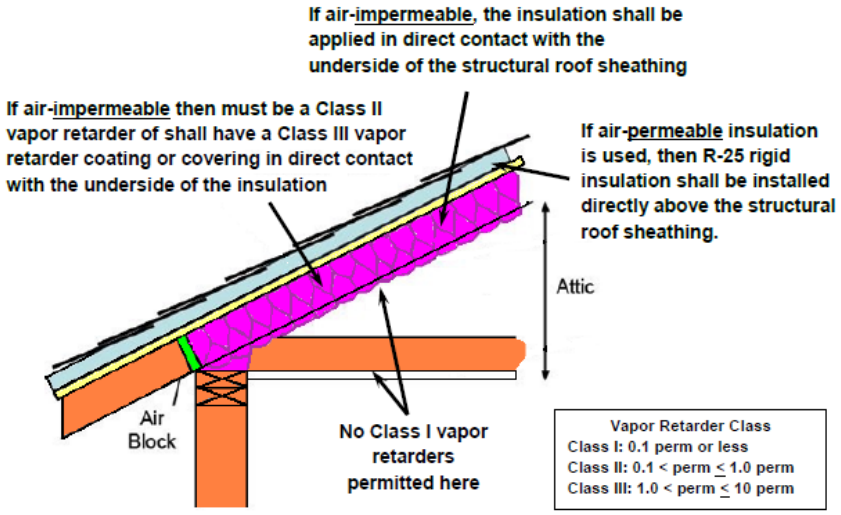
5.4. Where preformed insulation board is used as the air-impermeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

VAPOR RETARDER CLASS. *A measure of the ability of a material or assembly to limit the amount of moisture that passes through that material or assembly. Vapor retarder class shall be defined using the desiccant method with Procedure A of ASTM E 96 as follows:*

Class I: 0.1 perm or less
Class II: 0.1 < perm ≤ 1.0 perm
Class III: 1.0 < perm ≤ 10 perm

R904.1 Scope. *The requirements set forth in this section shall apply to the application of roof covering materials specified herein. Roof assemblies shall be applied in accordance with this chapter and the manufacturer's installation instructions. Installation of roof assemblies shall comply with the applicable provisions of Section R905.*

R905.1 Roof covering application. *Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. Unless otherwise specified in this section, roof coverings shall be installed to resist the component and cladding loads specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).*



Notes:

- **If rigid insulation is used as the air-impermeable insulation layer, it must be sealed at the perimeter or each individual piece to form a continuous layer.**
- **When wood shingles or shakes are used, a minimum of ¼-inch vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.**