VENTILATION FOR STEEP-SLOPE ROOF ASSEMBLIES

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Proper ventilation of attic spaces is a necessary component of quality steep-slope roof assemblies. Ventilation of attic spaces beneath steep-slope roof assemblies is necessary for the following reasons:

- To lower attic temperatures. Lowering attic temperatures will:
  - Reduce interior cooling load requirement.
  - Reduce roof deck temperature.
  - Optimize the life of asphalt shingles and other steep-slope roof coverings.
  - Minimize ice damming.

- To promote removal of excess moisture from attic spaces in most climates. Removing excess moisture will:
  - Reduce condensation potential.
  - Reduce the probability of premature structural deterioration.
  - Reduce potential damage to other building components.
  - Reduce mold/mildew growth.
  - Optimize the life of the structure.

NRCA recommends attic ventilation in the minimum amount of 1 square foot of net free ventilation area for every 150 square feet of attic space (1:150) measured at the attic floor level (e.g., ceiling).

Furthermore, where mean January temperatures are 30° F (-1° C) or less, NRCA suggests using a vapor retarder on the warm side of attic space insulation.

NRCA suggests the amount of attic ventilation be balanced between the eave and ridge. The intent of a "balanced" ventilation system is to provide nearly equivalent amounts of ventilation area at the eave/soffit and at or near the ridge. For a balanced ventilation system to function properly, approximately one-half of the ventilation area must be at the eave/soffit and approximately one-half of the ventilation area must be at or near the ridge (e.g., ridge vents, static vents) as shown in Figure 1. A balanced ventilation system relies on natural convection to promote ventilation.

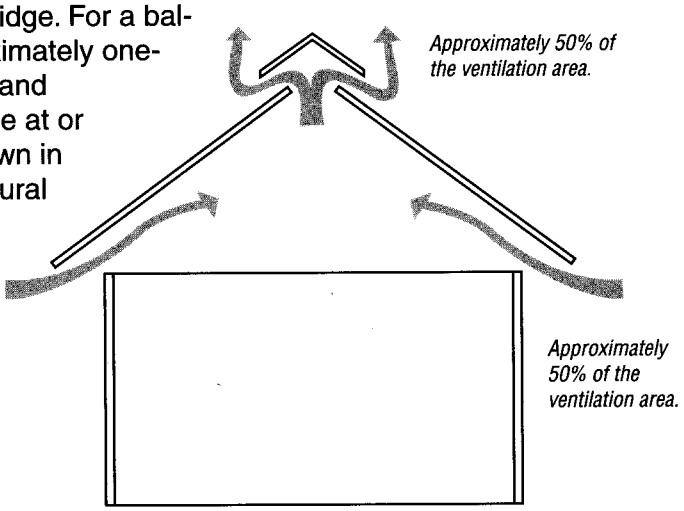

Figure 1: Schematic diagram of a balanced ventilation system for attic spaces. Soffit & ridge vents shown.

In lieu of a balanced ventilation system, forced or mechanical ventilation may be appropriate. Ventilation in the amount of 1.0 cubic feet per minute per square foot (0.30 cubic meters per minute per square meter) of attic space measured at the attic floor level is effectively equivalent to a 1:150 ventilation ratio.

For large-volume attic spaces (attics with roof slopes greater than 8:12), consideration should be given to increasing the amount of ventilation.