



TECHNICAL NOTE

FOR ADDITIONAL INFORMATION: www.frtw.com or 1.800.TEC.WOOD (832.9663)

ROOF VENTILATION

Free-flowing, natural roof , is highly desirable for any wood roof, treated or not, because it allows moisture to be exhausted whenever the roof is warm by solar radiation, regardless of the season. This is due to the “chimney effect” where air, rises, naturally, as it is warmed.

In a sloped roof with unconstructed soffit and ridge vents, this natural circulation of air removes moisture very efficiently. Warmed air is exhausted at the ridge (along with water vapor evaporated from the wood) and fresh air is simultaneously pulled in at the soffits.

The fresh air is warmed as it rises inside the attic, reducing its relative humidity, and increasing its capacity to absorb water vapor. The flow essentially stops at night and during cloudy, damp weather, due to the absence of solar warming, so that the moisture outside the air is not drawn in during these times.

Moisture accumulates in roofs as a result of activities inside the living space, such as cooking and showering. The airborne water vapor is carried into an attic through numerous small “air leaks” at penetrations and corners of walls and ceilings that allow air and airborne moisture to flow upward to the attic.

The moisture often condenses on cold roof surfaces, raising the moisture content of the wood, and sometimes causing drippage onto insulation. Vapor retarders or vapor barriers can reduce diffusion of moisture into the attic, but air leaks can carry as much as 10 times more moisture into the attic, then diffusion through drywall or other materials.

The fact that vapor retarders stop only 10% of the moisture flow into roof spaces, it does not seem logical to cut the minimum required net free vent area in half (from 1/150 to 1/300) just because a vapor retarder is used.

Power vents are questionable. Most are temperature-activated, which means they don't operate in winter when moisture accumulates fastest. They are not a substitute for natural ventilation. Gable vents won't help much either because, unless the wind is blowing just right, no airflow is generated.

There is no single answer to the question of how much vent area is needed in a roof. It is safe to say the vent area should be evenly divided between ridge vents and soffit vents, for untreated plywood, as well as treated plywood.

Hip roofs, flat roofs, and shed type roofs are hard to ventilate properly because of impediments to natural ventilation. Each must be analyzed to assure moisture control.

DISCLAIMER OF LIABILITY FOR RELIANCE ON INFORMATION PROVIDED BY HOOVER TREATED WOOD PRODUCTS, INC.: The information contained herein is true and accurate to the best of our knowledge, but is provided without warranty or guarantee. Since the conditions of use are beyond our control, Hoover Treated Wood Products, Inc. (“Hoover”), disclaims all liability and assumes no legal responsibility for damages resulting from use of or reliance upon the information contained herein.