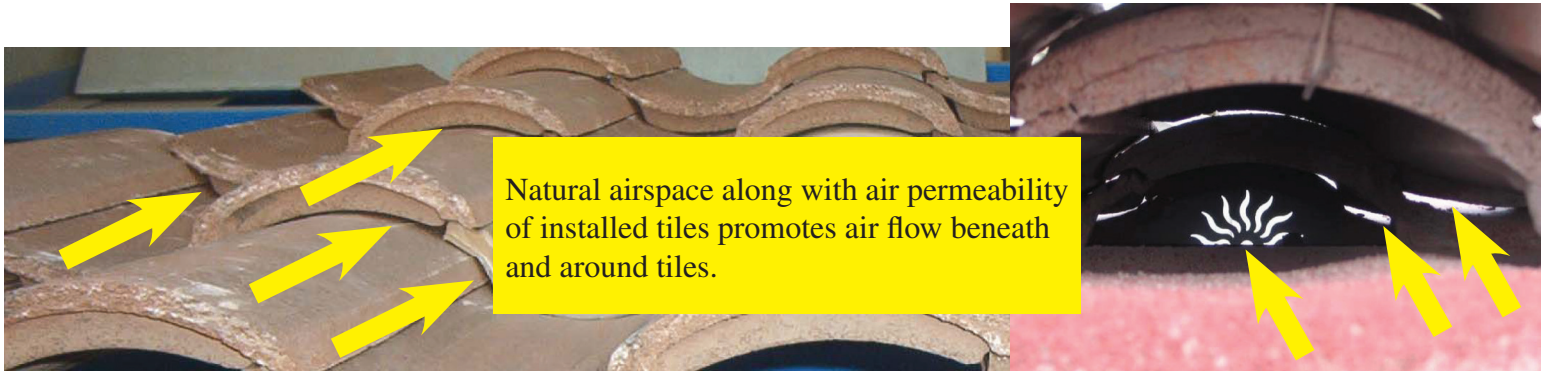


How The TileIntake™ Gets Air

Due to the unique design of the Lomanco TileIntake™, which allows it to be completely hidden when installed, a common question is asked; “Where does the TileIntake™ vent get it’s air to provide proper ventilation?”

Answer: The TileIntake™ vent gets outside make-up air from the airspace between the roof tiles and the roof decking. Commonly called the “Batten space.” A constant air supply is provided to this space from the permeability of the tile roof itself.



The Tile Roof Institute states, “Natural air ventilation under the tile creates a heat transfer barrier that can provide the benefit of a cooler house in the summer and a warmer house in the winter”.

The Lomanco TileIntake™ is also unique in that not only does it utilize this natural air ventilation, but will also increase the circulation of the air in the batten space. This will influence the dispersion of moisture and energy performance of the roof.

How Much Air is Needed ?

Studies have been conducted that show the approximate amount of air that moves through the openings in a typical tile roof. This is called Air Permeability. It is shown that between .5% and 1% of the laid surface area of a tile roof is air permeable.

The air permeability of a tile roof provides an overflow of air beyond what is required to properly ventilate an attic. (See example below)

Using the 1/300 rule, the amount of intake required to vent a 2,000 square foot attic would be 480 square inches.

Example

Area of Attic = Length x Width = 50’ x 40’ = 2000 Sq.ft.

2000 / 300 = 6.66 Sq. Ft. of ventilation required 3.33 Sq.ft. For exhaust and 3.33 Sq.ft for intake.

Sq. Ft. x144 = Sq. in - 3.33 x 144 = 480 Sq.in. Needed for exhaust and 480 Sq.in. for intake.

The laid surface area of a 40’ x 50’ simple tile roof at a 4/12 pitch would be approximately 2108 sqft.

Example

Total laid surface = 2108 Sq.ft.

Air permeability minimum is .5% of 2108 = 10.54 Sq.ft Since being permeable means passing or going through, we would take half of this amount to be available for the TileIntake™ vent.

10.54 / 2 = 5.27 Sq.ft. - Convert to Sq.in. 5.27 x144 = 759 Sq.in.

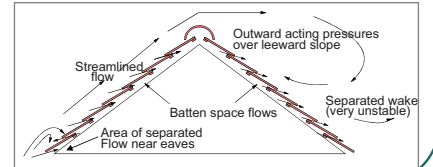
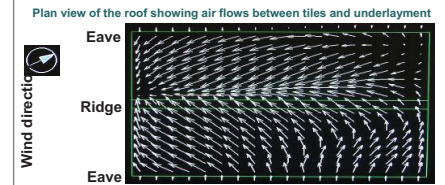
If calculated with maximum of 1% = 1518 Sq.in.

759 Sq.in. Minimum available through air permeability of tile roof.

480 Sq.in. Required to properly ventilate attic space.

The role of air movement in the batten-space Study conducted by Lafarge Roofing Technical Centers

- Tiles and slates are air permeable providing an air permeability of approximately 0.5% to 1% of the laid area.
- Complicated flow networks are found between tiles and underlayment
- The flow between tiles and underlayment will influence:
 - The energy performance of the roof
 - The wind loading on the tiles
 - The driving-rain performance
 - The dispersion of moisture



<http://coolcolors.lbl.gov/>
(PAC) meeting on 9/13/2007

Conclusion

Even with the minimum air permeability (.5%), a typical tile roof provides an excess of air over what is required to properly ventilate an attic.

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