ARCH TOP ROOF VENT

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ABSTRACT

A roof vent for ventilating a sloped roof of a building via a hole in the roof to atmosphere. The roof vent includes a flange portion for affixing on the roof, the flange portion having an opening in communication with the hole in the roof. The roof vent also includes a wall surface extending upwardly from the flange portion and extending around a perimeter of the opening to inhibit precipitation traveling along the flange portion from entering the opening and a cap having a first face for directing towards a peak of the roof, a second face opposite the first face, two opposing faces each connecting the first face to the second face, and a cover surface extending in a region between the first face, the second face and the two opposing side faces for inhibiting precipitation from entering the opening, the cap being supported by at least one support member and dimensioned to cover over the opening while providing a gap between the flange portion and one or more of the faces for facilitating passage of the atmosphere between the wall surface and the one or more of the faces; and the first face having a first surface connecting the two opposing side faces, the first surface extending from the cover surface towards the flange portion, wherein at least a portion of the first surface is curvilinear and the first surface is positioned outside a portion of the region between the two opposing faces.
ARCH TOP ROOF VENT

FIELD

[0001] The present disclosure relates generally to a roof vent for venting the roof of a building such as a house.

BACKGROUND

[0002] Roof vents provide the necessary ventilation to the roof of a house or other building, inhibiting condensation in the roof from the infiltration or collection of moisture into the roof or attic cavity. Various roof vents employ vanes, grates and louvers to permit atmospheric to be channeled between the roof and the atmosphere and to try to inhibit rain and snow from entering the roof through the roof vent. A variety of caps and covers have been used to act as a guard to prevent the infiltration of rain and snow.

[0003] Current roof vents typically include a horizontal top edge that provides an area for precipitation to accumulate when the roof vent is placed on a sloped roof. If precipitation is allowed to build up on a top edge of a roof vent, moisture can creep under the roof shingles and potentially damage the roof structure. For example, water can damage the plywood under the shingles causing rot which may lead to leakage and damage to other aspects of the building. Accumulation of snow at the top edge of a roof vent can also create an area of increased loading on a roof surface.

SUMMARY

[0004] It is an object of the present invention to provide a roof vent that obviates or mitigates at least some of the above-presented disadvantages in the art.

[0005] An improved roof vent for ventilating a sloped roof of a building via a hole in the roof to atmosphere but inhibits the infiltration of precipitation is desired. A top edge of a roof vent such as this may act as an atmospherefoil leading edge capable of changing the direction of atmospheric flow as atmosphere travels down the surface of a roof. This change of direction inhibits the stagnation of atmosphere and atmosphereborne particulates such as rain or snow at the top edge of the roof vent.

[0006] A first aspect provided is a roof vent for ventilating a sloped roof of a building via a hole in the roof to atmosphere, the roof vent comprising a flange portion for affixing on the roof, the flange portion having an opening in communication with the hole in the roof, a wall surface extending upwardly from the flange portion and extending around a perimeter of the opening to inhibit precipitation traveling along the flange portion from entering the opening; a cap having a first face for directing towards a peak of the roof, a second face opposite the first face, two opposing faces each connecting the first face to the second face, and a cover surface extending in a region between the first face, the second face and the two opposing side faces for inhibiting precipitation from entering the opening, the cap being supported by at least one support member and dimensioned to cover over the opening while providing a gap between the flange portion and one or more of the faces for facilitating passage of the atmosphere between the wall surface and the one or more of the faces; and the first face having a first surface connecting the two opposing side faces, the first surface extending from the cover surface towards the flange portion, wherein at least a portion of the first surface is curvilinear and the first surface is positioned outside a portion of the region between the two opposing faces.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] For a better understanding of the various embodiments described herein and to show more clearly how they may be carried into effect, reference will now be made, by way of example only, to the accompanying drawings which show at least one exemplary embodiment of an arch top roof vent.

[0008] FIG. 1 is a perspective view of a roof vent.

[0009] FIG. 2 is a perspective view of a preferred embodiment of the roof vent with cap attached.

[0010] FIG. 3 is a perspective view of the roof vent shown in FIG. 1 without the cap attached.

[0011] FIG. 4 is a cross-sectional view of the roof vent shown in FIG. 1.

[0012] FIG. 5 is a perspective view of the roof vent shown in FIG. 1.

[0013] FIGS. 6A, 6B, 6C and 6D are perspective views of alternate embodiments of the roof vent shown in FIG. 1.

[0014] In the drawings like characters of reference indicate corresponding parts in the different figures.

DETAILED DESCRIPTION

[0015] It will be appreciated that for simplicity and clarity of illustration, where considered appropriate, numerous specific details are set forth in order to provide a thorough understanding of the exemplary embodiments described herein. However, it will be understood by those of ordinary skill in the art that the embodiments described herein may be practiced without these specific details. In other instances, well-known methods, procedures and components are not described in detail so as not to obscure the embodiments described herein. Furthermore, this description is not to be considered as limiting the scope of the embodiments described herein in any way, but rather as merely describing the implementations of various embodiments described herein.

[0016] FIG. 1 shows an improved roof vent 10 which provides for roof ventilation while at the same time inhibiting the infiltration of precipitation including rain, snow or other atmospheric particles into an attic. Roof vent 10 is comprised of a flange portion 12, a wall surface 11 and a cap 16. Flange portion 12 is intended to affix to roof 50 and is preferably flat to rest flush with roof 50 and to provide for easy installation of roof vent 10. Wall surface 11 extends upwardly (e.g. perpendicularly) from flange portion 12 and about a periphery of opening 22. The cap 16 is dimensioned to cover over wall surface 11 and hole 28 but is also configured to provide for a gap 18 between cap 16 and flange portion 12 to permit atmospheric atmosphere to pass between the wall surface 11 and cap 16. Cap 16 also has a curvilinear first face 62 to deflect precipitation travelling along roof 50 away from a hole 28 in the roof 50.

[0017] As shown in FIG. 2, the roof vent 10 provides for roof ventilation while at the same time inhibiting the infiltration of rain, snow and other undesired atmosphere particulates. Flange portion 12 is preferably flat to rest against the surface of the roof 50 and cover over at least a portion of the surface of the roof 50. Flange portion 12 has a top surface 13 and an opening 22 to communicate with a hole 28 in roof 50.
Wall surface 11 has a central cavity 26 which communicates with opening 22 to permit atmosphere to circulate between attic interior 30, through hole 28 in roof 50 and cavity 26 of the wall surface 11. Wall surface 11 has one or more apertures 24 through which atmosphere can circulate between cavity 26 and outside atmosphere 32 through atmosphere passage 20 and a gap 18, where gap 18 is between the flange portion 12 and the cap 16. As can be seen in FIG. 3, wall surface 11 is formed as a frame having upper portion 38, lower portion 40 and sides 36 formed from support members 14. Apertures 24 is formed in wall surface 11 to allow for the passage of atmosphere between the atmosphere 32 and the cavity 26. The wall surface 11 is one example of a frame that can provide for structural rigidity between the cap 16 and flange portion 12, thus providing for structural integrity of the roof vent 10 in keeping the cap 16 at a spaced apart distance from the flange portion 12.

Wall surface 11 can extend transversely (e.g., perpendicular) to opening 22. Cap 16 can be dimensioned to cover over opening 22 from above. An atmosphere passage 20 can be formed between cap 16 and wall surface 11 so that atmospheric particles can flow through a side wall of wall surface 11 and atmosphere passage 20 and out gap 18. Any wind driven precipitation or other undesired particulates can be deflected by the wall surface 11 and cap 16 and thus be inhibited from entering the hole 28 and the attic space 30. Since atmosphere passage 20 can be larger than gap 18, a quantity of precipitation in the atmosphere can be deflected by the outside of wall surface 11 and not inhibit the flow of atmosphere outside of the roof vent 10 and attic interior 30.

Referring again to FIG. 2, cap 16 has a first face 62 directed towards a peak of roof 50, a second face 63 opposite the first face 62 and two opposing side faces 64 and 66 connecting the first face 62 to the second face 63. The cap 16 also has a cover surface 17 between opposing faces 64 and 66 that connects all four side faces 62, 63, 64 and 66. First face 62 connects to each of the opposing side faces 64 and 66 at two corners 81 and 82 of cap 16. Second face 63 connects to each of the opposing faces 64 and 66 at two different corners 83 and 84 of cap 16.

FIG. 6A illustrates one embodiment of cap 16 where faces 62, 63, 64 and 66 are connected to each other at corners 81, 82, 83, 84, where the corners 81, 82, 83, 84 are regions of intersection of the faces 62, 63, 64 and 66. Cap 16 is circular in shape. In this embodiment, first face 62 refers to the face of the circle shaped cap 16 substantially facing the peak of roof 50. Second face 63 refers to the opposite face of cap 16 substantially opposite to the first face 62 and facing away from the peak of the roof.

Opposing faces 64 and 66 refer to the two portions of the circular shape connecting the first face 62 to the second face 63.

The cap 16 can be supported by either of a plurality of separate support members 14 or by support members incorporated into the wall structure 11. The cap is dimensioned to cover over the wall surface 11 and the opening 22 while providing a gap 18 between the flange portion 12 and the cap 16. Gap 18 is illustrated in FIG. 4 and provides for the passage of atmosphere between the wall surface 11 and the cap 16.

First face 62 of cap 16 extends upwards from roof 50 to overlap with at least a portion of wall surface 11 at overlap region 71 (see FIG. 2 and FIG. 4). First face 62 provides a surface to inhibit the movement of precipitation from contacting the wall surface 11 and from entering the interior attic space 30 through the hole 28 in the roof 50. First face 62 provides a surface connecting the two opposing side faces 64 and 66, first face 62 also extending laterally from the second face 63 towards a peak of roof 50. In one embodiment, a middle point of the first face 62 is laterally closer to the peak of the roof than the two opposing side faces.

The surface of first face 62 is shaped to direct and deflect precipitation moving towards the first face 62 towards the two opposing side faces 64 and 66 of the cap 16.

The shape of first face 62 can dictate the direction in which precipitation is directed as it moves down the surface of roof 50 towards first face 62. First face 62 directs precipitation away from a midline X of roof vent 10 as shown in FIG. 5. Precipitation, including rain, snow and other undesirable atmospheric particulates, can also be directed in a direction opposite to that of the surface of roof 50 and over cap 16.

In one embodiment, first face 62 is arcately shaped over all or a portion of its surface which connects the two opposing faces 64 and 66, where arcately shaped is any shape that is curvilinear and curvilinear shapes are such that consist of a curved line or lines. One example of such an arcuate shape for first face 62 is shown in FIG. 1. First face 62 is concavely shaped over all or a portion of its surface with respect to cover surface 17, which is between opposing faces 64 and 66 and connects first face 62, second face 63, and opposing faces 64, 66, as previously described. However, first face 62 may take any curvilinear shape that promotes the redirection of precipitation moving directly above the surface of roof 50 or flange portion 12.

The first face 62 is outside of the region 90 of the cover surface 17 between the two opposing side faces 64, 66. A portion of cover surface 17 that is directly adjacent to the first face 62 is also outside of the region 90 between the two opposing side faces 64, 66. Cover surface 17 has a region 90 and a region 92 where region 90 is outside of the region 92 that is between the opposing side faces 64, 66 of the cap 16.

As precipitation travels along the surface of roof 50 and flange portion 12 towards first side 70, either directly on the surface of roof 50 or in the atmosphere space immediately above the surface of roof 50, the arcuate shape of first face 62 can change the direction of the precipitation so the precipitation is no longer directed towards the hole in the roof. This redirection prevents stagnation and accumulation of such precipitation at the surface of first face 62 and/or first side 70.

The shape of the remaining faces of cap 16 can vary but preferably, the first face 62 maintains a curved or arcuate shape to limit accumulation of snow or rain at the surface of the first face 62 and/or the first side 70 adjacent the roof 50. The perimeter of cap 16 shown in FIG. 1 is trapezoidal but other shapes can include square or diamond so long as the first face is able to direct the movement of snow and other undesirable particulates away from the surface of first face 62 and towards the opposing sides face 64, 66.

In one embodiment the first face 62, the second face 63 and the opposing side faces 64, 66 may combine to form a substantially diamond shape (see FIG. 6B).

FIG. 1 also shows a top design for the wall surface 11. Similarly to that previously described for first face 62 of cap 16, wall surface 11 may have a first side 70 directed towards a peak of roof 50, a second side 72 opposite the first side 70 and two opposing sides 74 and 76 connecting the first side 70 to the second side 72.
First side 70 of wall surface 11 extends from the surface of roof 50 and provides a surface to inhibit the movement of rain and snow from entering the interior attic space 30 through the hole 28 in the roof 50. First side 70 is preferably planar and shaped to direct objects in the atmosphere 32 moving through gap 18 towards the first side 70 towards the two opposing sides 74 and 76 of the wall surface 11.

The shape of first side 70 can dictate the direction in which undesired atmosphereborne particulates are directed as they move down the surface 19 of roof 50 towards first side 70. First side 70 can also direct snow, rain and atmosphereborne particulates away from a midline X of roof vent 10 as shown in FIG. 4.

In one embodiment, first side 70 has an arcuate shape over its entire surface.

This embodiment is shown in FIG. 3. As snow and other atmosphereborne particulates travel down the surface of sloped roof 50 towards first side 70, the arcuate shape of first side 70 can change the direction of snow, rain or other atmosphereborne particulates and prevent stagnation and accumulation of such at the surface of first side 70.

First side 70 of wall surface 11 is outside of the region 90 of the cover surface 17 between the two opposing sides 74,76. A portion of cover surface 17 that is directly adjacent to the first side 70 is also outside of the region 90 between the two opposing side faces 74,76. Cover surface 17 has a region 90 and a region 92 where region 90 is outside of the region 92 that is between the opposing side faces 74,76 of the cap 16.

The shape of the remaining faces of wall surface 11 can vary but preferably, the first side 70 preferably has a curve or arcuate shape to limit accumulation of snow or rain. The perimeter of wall surface 11 shown in FIG. 3 is trapezoidal but other shapes can include square or diamond so long as the first side 70 is able to direct the movement of snow and other undesirable particulates away from the surface of first face 62.

FIG. 1 illustrates a preferred embodiment of roof vent 10 wherein the first face 62 and the first side 70 are both substantially co-planar, the first face 62 extending from the cover surface 17 and the first side 70 extending from flange portion 12. The cap 16 and wall surface 11 are configured such that the passage of atmosphere can circulate between the gap 18 and an atmosphere passage 20, the cap 16 and the wall surface 11 being further configured such that the atmosphere passage 20 surrounds the wall surface. The atmosphere passage 20 surrounding the wall surface also has a uniform shape.

While the exemplary embodiments have been described herein, it is to be understood that the invention is not limited to the disclosed embodiments. The invention is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims, and scope of the claims is to be accorded an interpretation that encompasses all such modifications and equivalent structures and functions.

1. A roof vent for ventilating a sloped roof of a building via a hole in the roof to atmosphere, the roof vent comprising:
   a flange portion for affixing on the roof, the flange portion having an opening in communication with the hole in the roof;
   a wall surface extending upwardly from the flange portion and extending around a perimeter of the opening to inhibit precipitation travelling along the flange portion from entering the opening;
   a cap having a first face for directing towards a peak of the roof, a second face opposite the first face, two opposing faces each connecting the first face to the second face, and a cover surface extending in a region between the first face, the second face and the two opposing side faces for inhibiting precipitation from entering the opening, the cap being supported by at least one support member and dimensioned to cover over the opening while providing a gap between the flange portion and one or more of the faces for facilitating passage of the atmosphere between the wall surface and the one or more of the faces; and
   the first face having a first surface connecting the two opposing side faces, the first surface extending from the cover surface towards the flange portion, wherein at least a portion of the first surface is curvilinear and the first surface is positioned outside a portion of the region between the two opposing faces.

2. The roof vent of claim 1 wherein the wall surface has a first side directed towards a peak of the roof, a second side opposite the first side and two opposing sides each connecting the first side to the second side, wherein the first side of the wall surface provides a surface connecting the opposing sides and extends laterally from the second side towards the peak of the roof such that a middle point of the first side is laterally closer to the peak of the roof than the two opposing sides of the wall surface.

3. The roof vent of claim 1 wherein said least a portion of the first surface is curvilinear is an arcuate and of a concave shape with respect to the cover surface.

4. The roof vent of claim 2 wherein the first face extending towards the roof and the first side extending upwardly from the flange portion provide an overlap region.

5. The roof vent of claim 2 wherein the first face and the first side are co-planar extending towards the roof and upwardly from the flange portion, respectively.

6. The roof vent of claim 1 wherein the faces and wall surface are configured such that atmosphere can circulate between the gap and an air passage, the cap and the wall surface being further configured such that the air passage surrounds the wall surface.

7. The roof vent of claim 6 wherein the air passage surrounding the wall surface has a uniform cross sectional area.

8. The roof vent of claim 1 wherein the wall surface has a plurality of apertures to allow air to pass through the wall surface.

9. The roof vent of claim 1 wherein the cap is connected to a top of the wall surface by the at least one supporting member and a bottom of the wall surface is connected to the flange portion.

10. The roof vent of claim 1, wherein the precipitation is selected from the group consisting of water and snow.

11. The roof vent of claim 1, wherein said along the flange portion is adjacent and outside of contact with a surface of the flange portion.

12. The roof vent of claim 2, wherein the first side has at least a portion thereof as curvilinear.

13. The roof vent of claim 12, wherein said portion thereof as curvilinear is arcuate and of a concave shape with respect to the opening.

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