

DESCRIPTION

TITLE OF INVENTION

HORIZONTAL ROOFING ROOF STRUCTURE

TECHNICAL FIELD

[0001] The invention relates to horizontal roofing roof structures.

BACKGROUND ART

[0002] JP 2006-183265A (hereafter, referred to as patent literature 1) discloses a conventional horizontal roofing roof structure.

[0003] In the horizontal roofing roof structure disclosed in the patent literature 1, a plurality of horizontally roofing cladding materials are connected to each other in a direction (a lateral direction) perpendicular to a roof pitch direction (an eave-ridge direction in the patent literature 1). A lengthwise direction of a horizontally roofing cladding material is substantially parallel to the lateral direction.

[0004] An end in the lengthwise direction of the horizontally roofing cladding material is connected to an end in the lengthwise direction of an adjacent horizontally roofing cladding material. A throating plate is attached below the adjacent ends of the horizontally roofing cladding materials. A folded part, which is part bent towards a front surface, is provided on each edge in a right and left direction of the throating plate.

Also, a flashing part, which is part bent towards the front surface, is provided on an edge, close to the ridge, of the throating plate. Since that, rain water or the like flowing into a gap between the adjacent ends of the horizontally roofing cladding materials is introduced to the throating plate and then, discharged to a downstream side of the roof pitch direction

[0005] However, since the folded part and the flashing part have simply upwardly folded structures, when a large amount of rain water is introduced to the throating plate, a problem in a water barrier property might occur. Hence, in order to reduce an amount of the rain water or the like introduced to the throating plate as much as possible, a decorative member is attached on upper surfaces of the adjacent ends of the horizontally roofing cladding materials disclosed in patent literature 1.

[0006] The decorative member is attached so as to cover the adjacent ends of the horizontally roofing cladding materials which are connected to each other. This decorative member makes it possible to reduce the amount of water flowing into the gap between the adjacent ends of the horizontally roofing cladding materials as much as possible, and accordingly can prevent the rain water or the like introduced to the throating plate from flowing over the folded part and the flashing part.

[0007] However, a roof structure disclosed in the patent literature 1 requires the decorative member, which causes an increase in the number of parts and

thus makes it difficult to reduce cost, as well as takes more labor.

SUMMARY OF THE INVENTION

[0008] The present invention is achieved in view of the above circumstances, and an object of the present invention is to provide a horizontal roofing roof structure capable of maintaining the water barrier property without the decorative member.

[0009] A horizontal roofing roof structure of the present invention includes a first lateral roofing material; a second lateral roofing material arranged adjacent to an end in a lengthwise direction of the first lateral roofing material; and an inner gutter disposed below adjacent ends of the first lateral roofing material and the second lateral roofing material. The inner gutter includes a body part in a plate shape; a first seal that is provided on part, facing the first lateral roofing material, of the body part so as to extend along the end in the lengthwise direction of the first lateral roofing material and abuts a lower surface of the first lateral roofing material; a second seal that is provided on part, facing the second lateral roofing material, of the body part so as to extend along the end in a lengthwise direction of the second lateral roofing material and abuts a lower surface of the second lateral roofing material; and a third seal that is provided on part, between the first seal and the second seal, of the body part, and abuts both an end, on an upstream side in a roof pitch direction, of the first lateral roofing material and an end, on the upstream side in a roof pitch direction, of the second

lateral roofing material.

[0010] Also, in the horizontal roofing roof structure, it is preferable that a gap is provided between the adjacent ends of the first lateral roofing material and the second lateral roofing material, so as to allow the inner gutter to discharge, through the gap, water which is received by the inner gutter.

[0011] Also, in the horizontal roofing roof structure, it is preferable that each of the first seal and the second seal extends an entire length of the body part in the roof pitch direction.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is an exploded perspective view of a horizontal roofing roof structure of the present embodiment;

FIG. 2 is a perspective view of an essential part of the horizontal roofing roof structure of the present embodiment;

FIG. 3 is a perspective view of a lateral roofing material of the present embodiment;

FIG. 4 is a perspective view of an inner gutter of the present embodiment;

FIG. 5 is a section taken along line D-D in FIG. 1;

FIG. 6 is an exploded perspective view of the horizontal roofing roof structure of the present embodiment; and

FIG. 7A is a section taken along line A-A in FIG. 1, FIG. 7B is a

section taken along line B-B in FIG. 1, and FIG. 7C is a section taken along line C-C in FIG. 1.

DESCRIPTION OF EMBODIMENTS

[0013] The following description is made to an embodiment according to the present invention with referring to attached drawings.

[0014] A horizontal roofing roof structure of the embodiment is for example applied to a roofing structure such as a gable roof, a hipped roof, and a penthouse roof. A roof is provided on a top part of a building. The roof is inclined. An inclining direction of the roof (a direction parallel to an arrow A1 in FIG. 1, hereinafter, referred to as a roof pitch direction) is defined as a direction parallel to an eave-ridge direction. In other words, the roof pitch direction is defined as a direction parallel to a rain flowing direction (a water-flow direction) on the roof. Also, a direction perpendicular to the roof pitch direction is defined as a lateral direction (i.e. a ridge direction, a direction parallel to an arrow A2 in FIG. 1).

[0015] In the embodiment, a "ridge" is defined as the highest part of a surface of the roof. Therefore, according to the embodiment, the ridge means not only a ridge line part which is an intersection of roofs inclined in different directions, but also a top part of a penthouse roof.

[0016] As shown in FIG. 1, the horizontal roofing roof structure of the

embodiment includes a roof base material 1 and a horizontally roofing roof 2. The horizontally roofing roof 2 is attached on the roof base material 1.

[0017] The roof base material 1 supports the horizontally roofing roof 2. The roof base material 1 is provided under the horizontally roofing roof 2. The roof base material 1 is inclined at angle substantially the same as an angle corresponding to the roof pitch. In other words, the roof base material 1 is inclined downward from the ridge towards an eave. The roofing base material 1 includes for example, a plurality of frames 11, a sheathing roof board 12, and a waterproofing sheet 13.

[0018] The frame 11 is made of a steel material such as, a steel channel and a wide-flange steel beam. The frame 11 has a length in the direction perpendicular to the roof pitch direction (i.e. is long in the lateral direction). The plurality of the frames 11 are arranged in the eave-ridge direction. The plurality of frames 11 are parallel to each other. The sheathing roof board 12 is secured on the frames 11. The sheathing roof board 12 has lengths in the eave-ridge direction and the lateral direction, and is shaped like a rectangular plate. The water proofing sheet 13 is laid on the sheathing roof board 12. The water proofing sheet 13 is made of for example, an asphalt roofing or a rubber sheet. Even if rain water intrudes into a gap in the horizontally roofing roof 2, the rain water can be prevented from intruding into an inside of the building, because the water proofing sheet 13 is provided on the sheathing roof board 12.

[0019] Note that, the roof base material 1 does not necessarily include the water proofing sheet 13. Also, a rafter may be provided under the sheathing roof board 12. Also, the frame 11 may be made of wood, and is not limited to having the structure of the embodiment.

[0020] The horizontally roofing roof 2 is situated above the roof base material 1. The horizontally roofing roof 2 includes a plurality of lateral roofing materials 3 and inner gutters 5. The horizontally roofing roof 2 is formed of a plurality of sets of lateral roofing materials 3. The plurality of sets are arranged in the roof pitch direction while in each set multiple lateral roofing materials 3 are connected in the lateral direction.

[0021] Note that, hereafter, any one of the plurality of lateral roofing materials 3 is defined as a first lateral roofing material 31, and another lateral roofing material 3 of the plurality of lateral roofing materials 3 which is adjacent to the right or left side of the first lateral roofing material 31 is defined as a second lateral roofing material 32. In the present embodiment, for example in FIG. 2, the left lateral roofing material 3 is the first lateral roofing material 31, and the lateral roofing material 3 on the right side of the first lateral roofing material 31 is the second lateral roofing material 32.

[0022] The first lateral roofing material 31 is for example, made of a metal plate having a thickness of about 0.3mm to 1.0mm. The metal plate may be

a coated steel or a galvanized steel for example. As shown in FIG. 3, the first lateral roofing material 31 includes a roofing material body 40, an engaging part 41, an engaged part 42, a liner protruding part 43, an attachment part 44, and an upstanding part 45. The roofing material body 40, the engaging part 41, the engaged part 42, the liner protruding part 43, the attachment part 44, and the upstanding part 45 are formed by bending the metal plate.

[0023] The roofing material body 40 constitutes most part of the roof. The roofing material body 40 has a width in the eave-ridge direction and a length in the lateral direction. Thereby the roofing material body 40 is shaped like a rectangle in a planar view. The roofing material body 40 includes a front part 401, a bent part 402 and a rear part 403. The front part 401 is inclined relative to the rear part 403. The front part 401 is inclined so as to become higher towards the eave than at an end, close to the eave, of the rear part 403. Note that, a bending angle of the front part 401 relative to the rear part 403 (an angle between a surface of the front part 401 and a plane including a surface of the rear part 403) is for example, about 12°. The bent part 402 is provided at an intersection of the front part 401 and the rear part 403. Thereby, the bent part 402 is formed in a middle part in a width direction of the roofing material body 40. The bent part 402 is formed continuously in a length direction (i.e. the lateral direction). The bent part 402 has an upwardly bent shape.

[0024] The engaging part 41 protrudes from an end, close to the ridge, of the roofing material body 40. The engaging part 41 is caught by the engaged part 42 of another lateral roofing material 3. The engaging part 41 is formed substantially in an L-shape in a cross section. The engaging part 41 extends an entire length in the length direction of the roofing material body 40.

[0025] The engaged part 42 protrudes from an end, close to the ridge, of the roofing material 40. The engaged part 42 is formed by bending a part extending from the end, close to the ridge, of the roofing material 40 towards an upper side and then towards the eave, and then an end, close to the eave, of the bent part is further bent towards the ridge. The engaged part 42 extends the entire length in the length direction of the roofing material body 40.

[0026] The linear protruding part 43 protrudes from an end, close to the ridge, of the engaged part 42. The linear protruding part 43 projects upward. The linear protruding part 43 extends an entire length in a length direction of the engaged part 42.

[0027] The attachment part 44 protrudes from an end, close to the ridge, of the engaged part 43. A bottom surface of the attachment surface 44 is included in substantially the same plane including the surface of the rear part 403 of the roofing material body 40. A groove 441 is formed by setting

back the attachment part 44 partially. A fixture is driven into the bottom of the groove 441 thereby, the first lateral roofing material 31 being secured to the roof base material 1. Explained in detail, the first lateral roofing material 31 is secured to the roof base material 1 by screwing a screw as the fixture into the bottom of the groove 441. The groove 441 allows a worker to easily decide a position where the screw is to be fixed.

[0028] The upstanding part 45 protrudes upward from an end, close to the ridge, of the attachment part 44. A flange 451 is provided on a top end of the upstanding part 45.

[0029] As shown in FIG. 2, the second lateral roofing material 32 is situated adjacent to the first lateral roofing material 31 in the lateral direction of the first lateral roofing material 31.

[0030] The second lateral roofing material 32 is positioned adjacent to the end in the lengthwise direction of the first lateral roofing material 31. The second lateral roofing material 32 is attached substantially parallel to the first lateral roofing material 31. In other words, a lengthwise direction of the second lateral roofing material 32 is substantially parallel to the lengthwise direction of the first lateral roofing material 31. Also, the second lateral roofing material 32 and the first lateral roofing material 31 are arranged substantially linearly in the lateral direction in a planar view. Note that, explanation of a structure of the second lateral roofing material 32

is omitted because the structure thereof is the same as that of the first lateral roofing material 31.

[0031] The inner gutter 5 is positioned below the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32.

[0032] The inner gutter 5 is provided in order to receive rain water or the like which passes through a gap between the first lateral roofing material 31 and the second lateral roofing material 32. As shown in FIG. 4, the inner gutter 5 includes a body part 51, a first seal 52, a second seal 53, and a third seal 54.

[0033] The body part 51 is made of a metal plate. The body part 51 has a length in the eave-ridge direction and has a width in the lateral direction, thereby the body part 51 being formed in a rectangle shape in a planar view. The body part 51 includes a front side part 511, a bent part 512, and a rear side part 513. The front side part 511 is inclined relative to the rear side part 513. The front side part 511 is inclined so as to become higher towards the eave than at an end, close to the eave, of the rear side part 513. Note that, a bending angle of the front side part 511 relative to the rear side part 513 (an angle between a surface of the front side part 511 and a plane including a surface of the rear side part 513) is for example, about 8°. The bent part 512 is provided at an intersection of the front side part 511 and the rear side part 513. Thereby, the bent part 512 is formed in a middle part in

a width direction of the body part 51. The bent part 512 is provided continuously in the width direction of the body part 51. The bent part 512 has an upwardly bent shape.

[0034] Also, a flashing part 514 is provided on an end, close to the ridge, of the body part 51. The flashing part 514 protrudes upward from an end, close to the ridge, of the rear side part 513 of the body part 51. The flashing part 514 extends an entire length in the width direction of the body part 51. Further, a guide part 515 is provided on an end, close to the eave, of the body part 51. The guide part 515 protrudes downward from an end, close to the eave, of the front side part 511 of the body part 51. Accordingly, the guide part 515 can smoothly guide the rain water which flows down from the front side part 511 of the body part 51 toward the eave.

[0035] The first seal 52 is provided on an end, close to the first lateral roofing material 31, of the body part 51. In more detail, the first seal 52 is provided slightly inward from an edge of the body part 51. In other words, the first seal 52 is provided on part, facing the first lateral roofing material 31, of the body part 51. Also, the first seal 52 extends an entire length in the length direction (i.e. a direction parallel to the eave-ridge direction) of the body part 51. In other words, as shown in FIG. 2, the first seal 52 is provided along the end in the lengthwise direction of the first lateral roofing material 31. The first seal 52 has a length in a direction parallel to the eave-ridge direction, has a width in the lateral direction, and is shaped like a

strip. The first seal 52 abuts a lower surface of the first lateral roofing material 31.

[0036] The second seal 53 is provided on an end, close to the second lateral roofing material 32, of the body part 51. In more detail, the second seal 53 is provided slightly inward from an edge of the body part 51. In other words, the second seal 53 is provided on part, facing the second lateral roofing material 32, of the body part 51. Also, the second seal 53 extends the entire length in the length direction (i.e. a direction parallel to the eave-ridge direction) of the body part 51. In other words, as shown in FIG. 2, the second seal 53 is provided along the end in the lengthwise direction of the second lateral roofing material 32. The second seal 53 has a length in the direction parallel to the eave-ridge direction, has a width in the lateral direction, and is shaped like a strip. The second seal 53 abuts a lower surface of the second lateral roofing material 32.

[0037] The third seal 54 is positioned on the end, close to the ridge, of the body part 51. Also, the third seal 54 is positioned between the first seal 52 and the second seal 53. The third seal 54 is shaped like a rectangle in a planar view. The third seal 54 may extend an entire length between the first seal 52 and the second seal 53, or may extend part of the entire length between the first seal 52 and the second seal 53. The third seal 54 abuts both the end, close to the ridge, of the first lateral roofing material 31 and the end, close to the ridge, of the second lateral roofing material 32.

[0038] Note that, the seals 52, 53, and 54 may be united, or the first seal 52 and the third seal 54 may be united, or the second seal 53 and the third seal 54 may be united.

[0039] Those respective seals 52, 53, 54 are made of for example, a seal made of materials such as EPDM (Ethylene Propylene Rubber) foaming rubber. Note that, the first seal 52, the second seal 53 and the third seal 54 are not limited to materials described in the embodiment.

[0040] The plurality of lateral roofing materials 3 and the inner gutters 5 having such structures are for example, produced by the following way.

[0041] As shown in FIG. 5, a worker attaches a starter material 6 to the eave. The starter material 6 is for example formed of an under-eave throating. The starter material 6 has a length in the lateral direction. The starter material 6 is attached along the eave. Note that, like the lateral roofing material 3, the starter material 6 includes an engaged part 61 and a linear protruding part 62. The engaged part 61 and the linear protruding part 62 of the starter material 6 are the same in structures as the engaged part 42 and the linear protruding part 43 of the lateral roofing material 3, and therefore explanations of the engaged part 61 and the linear protruding part 62 are omitted.

[0042] Next, the worker situates a lateral roofing material 3 on the roof base material 1 so as to be closest to the eave. The worker situates the first lateral roofing material 31 on the roof base material 1 while the engaging part 41 of the first lateral roofing material 31 is caught by the engaged part 61 of the starter material 6. Then the worker situates the second lateral roofing material 32 to be adjacent to the first lateral roofing material 31 in the lateral direction.

[0043] Note that, as shown in FIG. 1, the worker forms a gap between the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32. The gap is for example, about 3 to 10 mm in width.

[0044] The worker situates the inner gutter 5 below a position between the first lateral roofing material 31 and the second lateral roofing material 32. The inner gutter 5 is interposed between: the roof base material 1; and the first lateral roofing material 31 and the second lateral roofing material 32. As shown in FIG. 5, the worker situates the inner gutter 5 so that the guide part 515 of the inner gutter 5 is on the linear protruding part 62 of the starter material 6.

[0045] Then, the worker drives the fixtures into the attachment parts 44 of the first lateral roofing material 31 and the second lateral roofing material 32 thereby, the first roofing material 31 and the second roofing material 32 being secured to the roof base material 1.

[0046] In this way, the worker arranges lateral roofing materials 3 one by one along the lateral direction. After attaching the set of lateral roofing materials 3 laterally in one row, the worker arranges one by one laterally a next set of lateral roofing materials 3 so as to be individually immediately adjacent to ends, facing the ridge, of the lateral roofing materials attached. In this way, the worker arranges lateral roofing materials 3 in order from the eave to the ridge (see FIG. 6). Thereby, the horizontally roofing roof 2 is formed.

[0047] Note that, as shown in FIG. 7A, the inner gutter 5 is positioned so that the guide 515 is laid on the liner protruding part 43 of the lateral roofing material 3 positioned close to the eave.

[0048] Also, as shown in FIG. 7C, with regard to a lateral roofing material 3 close to the ridge and a lateral roofing material 3 close to the eave, a tip of the engaging part 41 of the lateral roofing material 3 close to the ridge is in pressure contact with the engaged part 42 of the lateral roofing material 3 close to the eave (a first pressure contact area 71), a back surface of the lateral material 3 close to the ridge is in pressure contact with the linear protruding part 43 of the lateral roofing material 3 close to the eave (a second pressure contact area 72), and the back surface of the lateral roofing material 3 close to the ridge is in pressure contact with the flange 451 of the lateral roofing material 3 close to the eave (a third pressure contact area 73).

[0049] Especially, in such a situated state, this lateral roofing material 3 is elastically deformed so that an angle of the bent part 402 is in a range of 8° to 12°. Since that, in the situated state, the end, close to the eave, of the lateral roofing material 3 is biased upward due to spring back of the bent part 402. Also, the engaging part 41 is caught by the engaged part 42, and thereby is elastically deformed so that an open end of the engaging part 41 expands. By spring back of the engaging part 41, the front part 401 is biased towards the flange 451 and the linear protruding part 43 of the lateral roofing material 3 close to the eave. Thereby, in the situated state, the lateral roofing material 3 is strongly in pressure contact at the respective pressure contact areas 71, 72, and 73, and an abutting area between the bent part 402 and the sheathing rood board 12. As a result, the horizontal roofing roof structure of the present embodiment can prevent displacements of the lateral roofing materials 3, as well as, can improve water tightness of the horizontal roofing roof structure.

[0050] When rain falls on the horizontally roofing roof 2, most of rain water falling on a lateral roofing material 3 may flow down to an adjacent lateral roofing material 3 close to the eave. In contrast, part of the rain water falling on the lateral roofing material 3 may flow into the inner gutter 5 through the gap between the first lateral roofing material 31 and the second lateral roofing material 32. The rain water flowing into the inner gutter 5 flows down to the body part 51 and the guide part 515 sequentially, and then

is discharged to another lateral roofing material 3 close to the eave, through the gap between the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32.

[0051] When wind and rain are severe, rain water flows into the space between the first lateral roofing material 31 and the second lateral roofing material 32 due to wind blowing up from the eave toward the ridge. When this happens, the rain water tends to flow towards the end, close to the ridge, of the inner gutter 5. However, since the horizontal roofing roof structure of the embodiment includes the third seal 54, it is possible to effectively block the rain water flowing from the space towards the ridge side.

[0052] As above explained, the horizontal roofing roof structure of the embodiment includes the first lateral roofing material 31, the second lateral roofing material 32 and the inner gutter 5. The second lateral roofing material 32 is arranged adjacent to the end in the lengthwise direction of the first lateral roofing material 31. The inner gutter 5 is disposed below the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32. The inner gutter 5 includes the body part 51 formed in a plate shape, the first seal 52, the second seal 53, and the third seal 54. The first seal 52 is provided on part, facing the first lateral roofing material 31, of the body part 51 so as to extend along the end in the lengthwise direction of the first lateral roofing material 31. The first seal 52 abuts the lower surface of the first lateral roofing material 31. The second seal 53 is

provided on part, facing the second lateral roofing material 32, of the body part 51 so as to extend along the end in the lengthwise direction of the second lateral roofing material 32. The second seal 53 abuts the lower surface of the second lateral roofing material 32. The third seal 54 is provided on part, between the first seal 52 and the second seal 53, of the body part 51. The third seal 54 abuts both an end, on an upstream side in the roof pitch direction, of the first lateral roofing material 31 and an end, on the upstream side in the roof pitch direction, of the second lateral roofing material 32.

[0053] Since that, according to the horizontal roofing roof structure of the present embodiment, even if rain water intrudes through the gap between the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32, the inner gutter 5 can receive the rain water. Especially, even when wind and rain are severe, the horizontal roofing roof structure of the present embodiment can ensure well water barrier property because the right side, the left side and the ridge side of a junction between the first lateral roofing material 31 and the second lateral roofing material 32 can be sealed with the first seal 52, the second seal 53, and the third seal 54, respectively. As a result, the horizontal roofing roof structure of the present embodiment need not include the decorative member necessary for the conventional horizontal roofing roof structure, and thus can be produced at a lowered cost. In brief, according to the horizontal roofing roof structure of the present embodiment, it is possible to maintain the water barrier

property without the decorative member.

[0054] Also, the gap is provided between the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32 in the embodiment. The horizontal roofing roof structure of the embodiment allows the inner gutter 5 to discharge, through the gap, water which is received by the inner gutter 5.

[0055] The horizontal roofing roof structure of the present embodiment accordingly can discharge most of rain water received by the inner gutter 5, toward the eave through the gap. Therefore, according to the horizontal roofing roof structure of the present embodiment, it is possible to prevent rain water from staying on the back side of the lateral roofing material 3.

[0056] Also, since the present embodiment includes the gap provided between the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32, even if the first lateral roofing material 31 and/or the second lateral roofing material 32 is expanded due to heat, interference between them can be prevented.

[0057] Also, the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32 are flush with each other, and thus the appearance can be improved. In the conventional horizontal roofing roof, the roof surface cannot be flat because of presence of the decorative member.

However, according to the horizontal roofing roof structure of the present embodiment, it is possible to obtain a flat roof surface. Therefore, the horizontal roofing roof of the present embodiment can have simple appearance.

[0058] Note that, the horizontal roofing roof structure of the present embodiment includes the gap provided between the adjacent ends of the first lateral roofing material 31 and the second lateral roofing material 32. However, in the present invention, the gap is optional.

[0059] Also, the horizontal roofing roof structure of the present embodiment does not include a thermally insulating material between the sheathing roof board 12 and the lateral roofing material 3. However, the thermally insulating material may be provided between the sheathing roof board 12 and the lateral roofing material 3.

[0060] Also, the roofing structure of the present invention is not limited to the present embodiment and can be implemented with appropriate modification without going beyond the inherent scope of the present invention.

CLAIMS

1. A horizontal roofing roof structure, comprising:

a first lateral roofing material;

a second lateral roofing material that is arranged adjacent to an end in a lengthwise direction of the first lateral roofing material; and

an inner gutter disposed below adjacent ends of the first lateral roofing material and the second lateral roofing material,

the inner gutter comprising:

a body part;

a first seal that is provided on part, facing the first lateral roofing material, of the body part so as to extend along the end in the lengthwise direction of the first lateral roofing material and abuts a lower surface of the first lateral roofing material;

a second seal that is provided on part, facing the second lateral roofing material, of the body part so as to extend along the end in a lengthwise direction of the second lateral roofing material and abuts a lower surface of the second lateral roofing material; and

a third seal that is provided on part, between the first seal and the second seal, of the body part, and abuts both an end, on an upstream side in a roof pitch direction, of the first lateral roofing material and an end, on the upstream side in the roof pitch direction, of the second lateral roofing material.

2. The horizontal roofing roof structure according to claim 1, wherein

a gap is provided between the adjacent ends of the first lateral roofing material and the second lateral roofing material, so as to allow the inner gutter to discharge, through the gap, water which is received by the inner gutter.

3. The horizontal roofing roof structure according to claim 1 or 2, wherein each of the first seal and the second seal extends an entire length of the body part in the roof pitch direction.