

[54] FLASHING MEMBER AND WALL STRUCTURE UTILIZING THE SAME

3,634,984 1/1972 Murphy 52/58 X

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[52] U.S. Cl. 52/58, 52/300, 52/520

[51] Int. Cl. E04d 3/36

[58] Field of Search 52/58, 309, 520, 524, 527, 52/535, 588, 726, 716, 288, 287, 300

[57] ABSTRACT

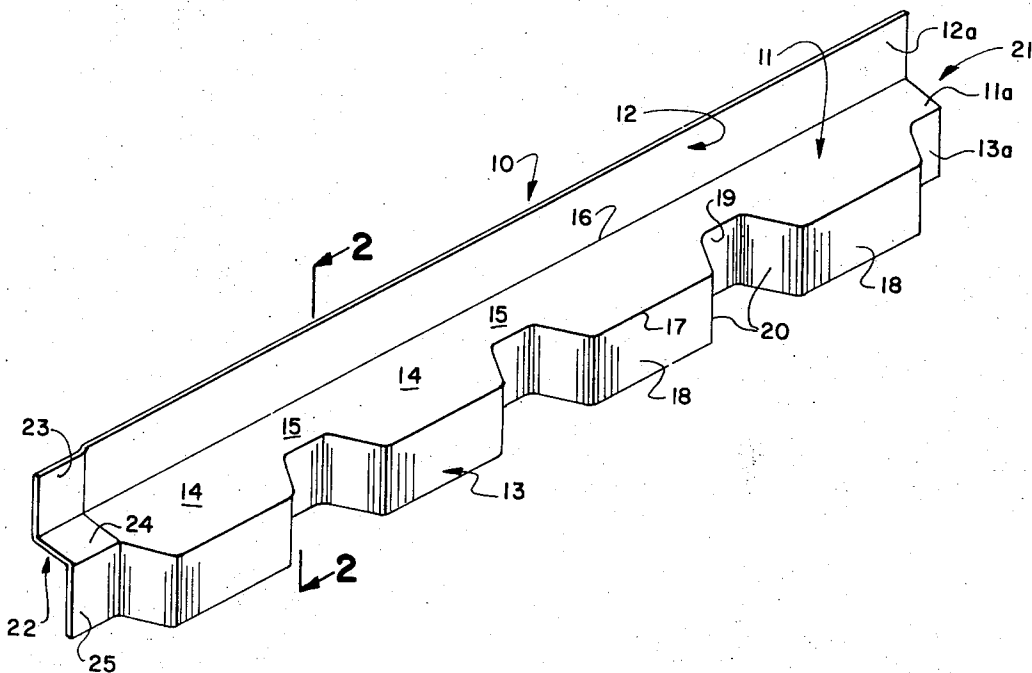
A flashing member for use between the confronting transverse panel ends of upper and lower building panels. The flashing member has a generally Z-shaped transverse profile and includes a horizontal leg, an upwardly extending rear leg and a downwardly extending profiled forward leg. When installed, the horizontal leg is positioned between the transverse panel ends such that the rear leg overlaps the inboard face of the upper panel and the forward leg overlaps the outboard or exposed face of the lower panel. The profile of the forward leg corresponds to the profile of the exposed panel face. The rear leg is provided with a channel for receiving a sealant. The opposite ends of the rear leg provide a laterally adjustable overlapping and interlocking connection between adjacent flashing members.

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18 Claims, 13 Drawing Figures



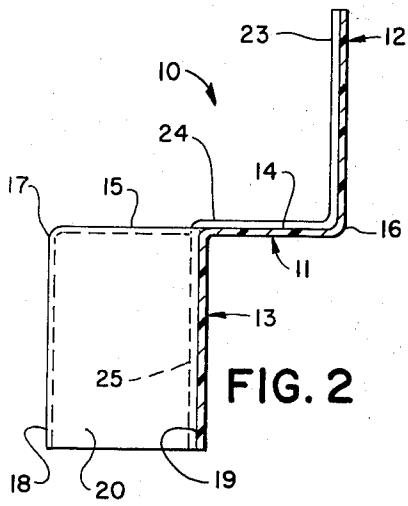


FIG. 2

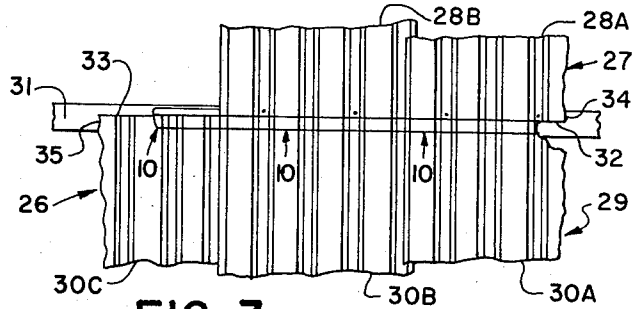


FIG. 3

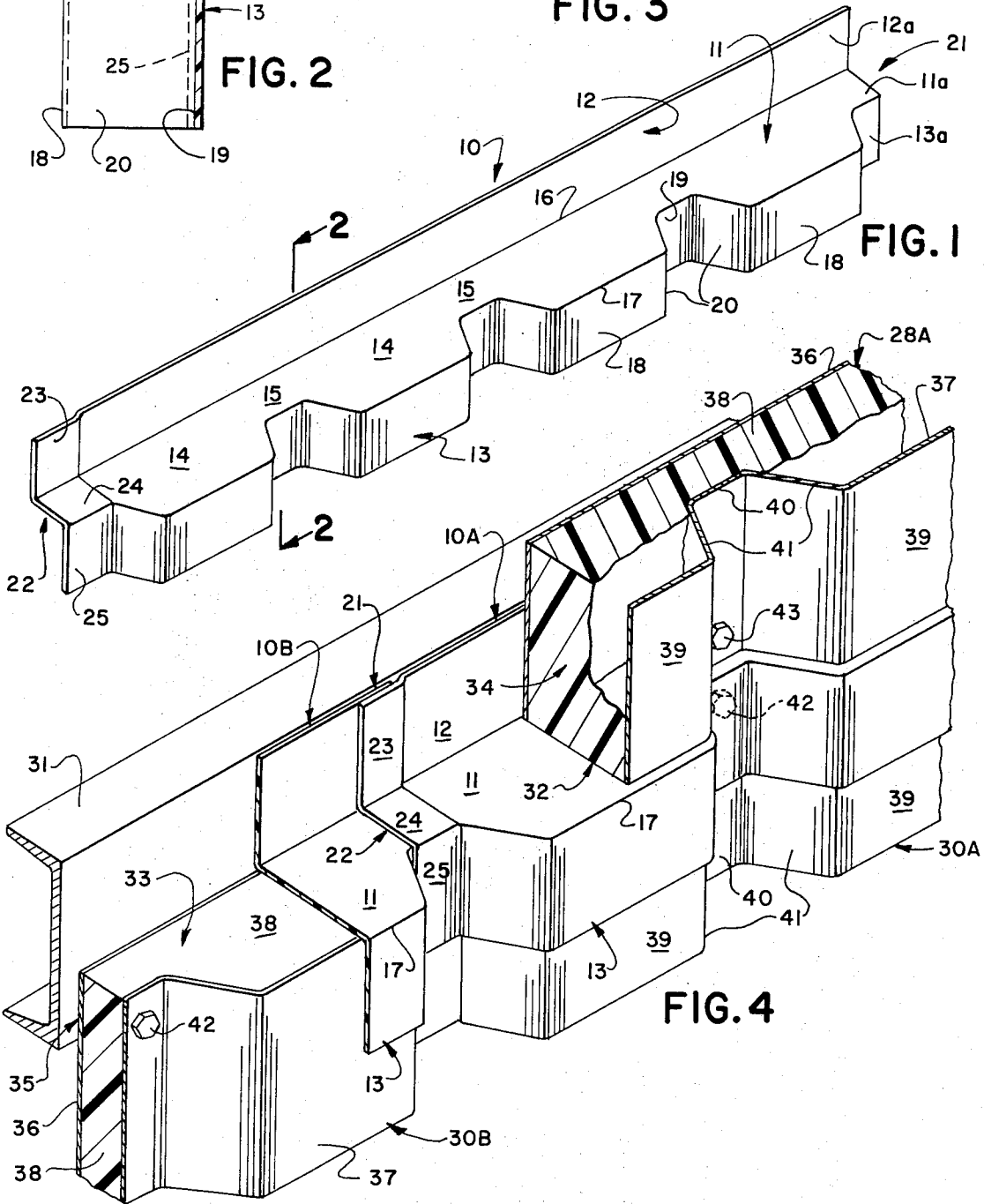


FIG. 1

FIG. 4

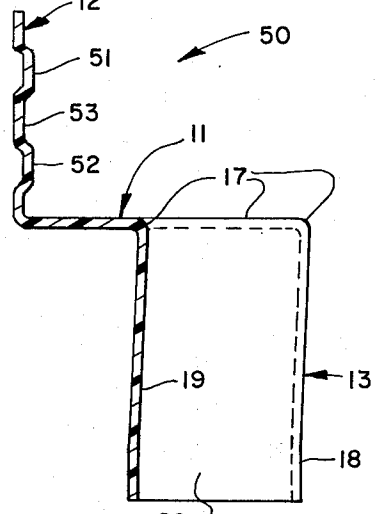
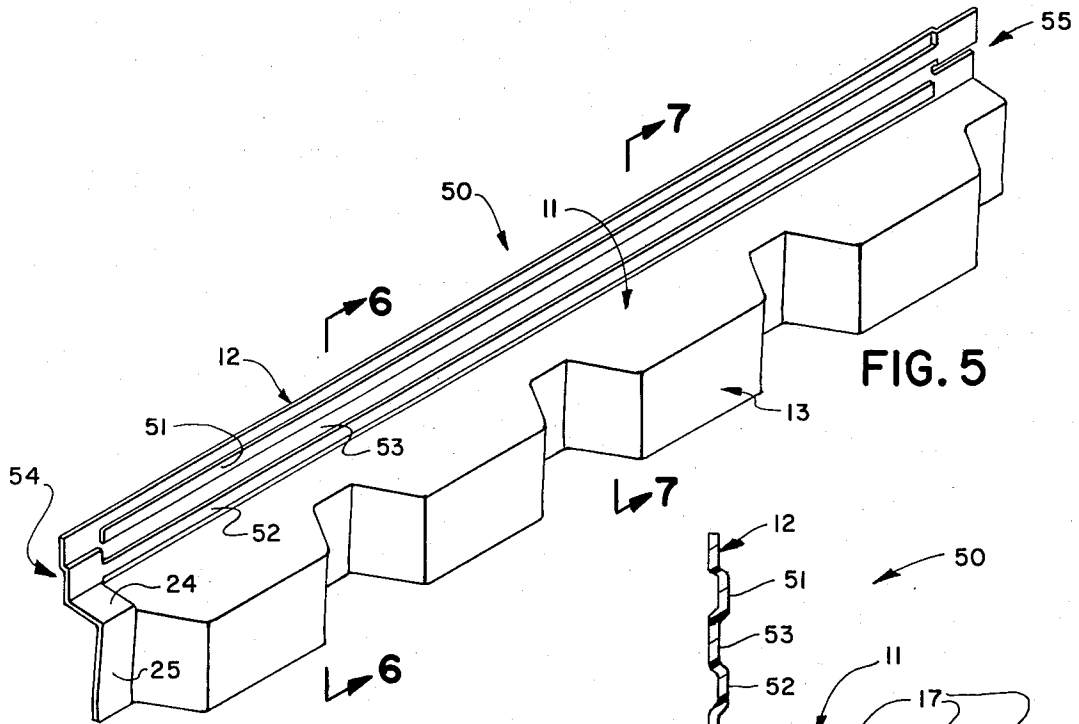


FIG. 6

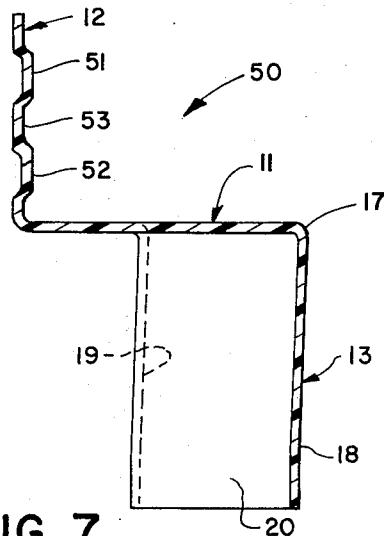


FIG. 7

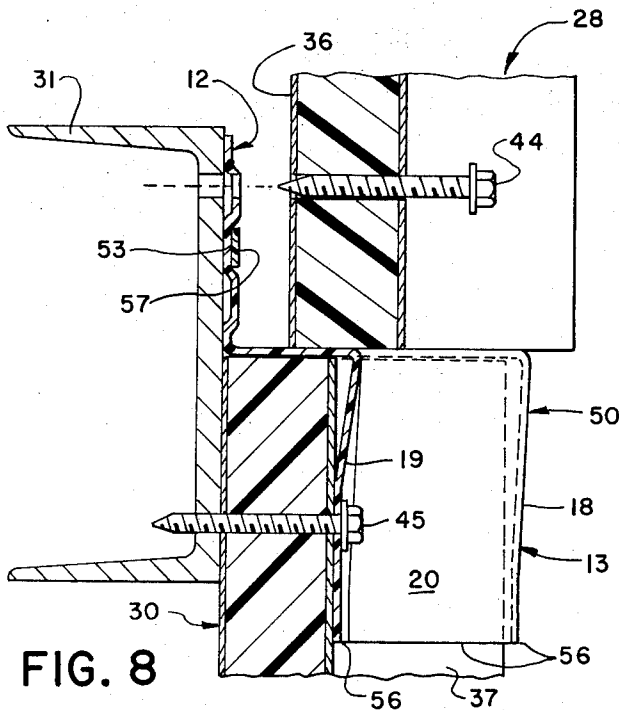


FIG. 8

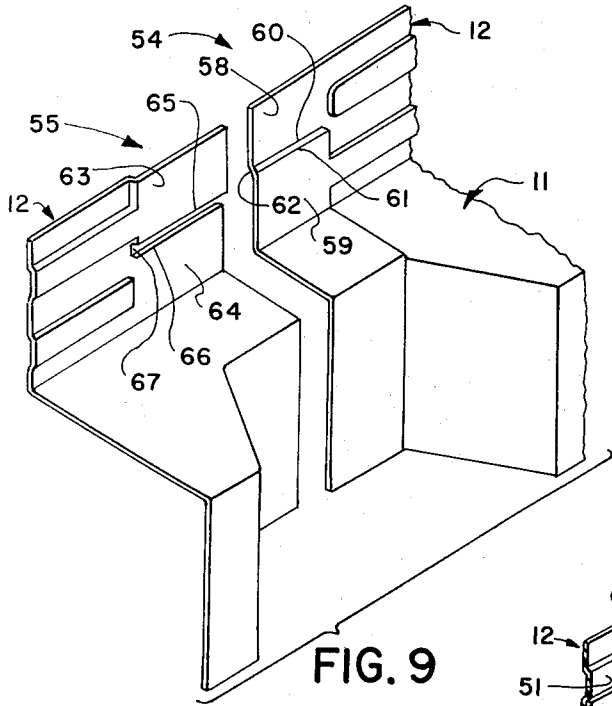


FIG. 9

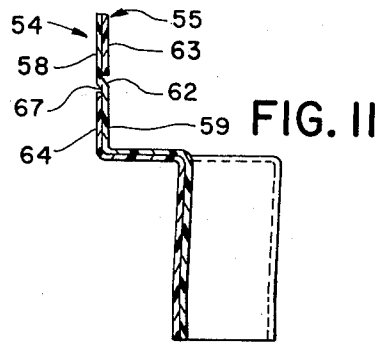


FIG. 11

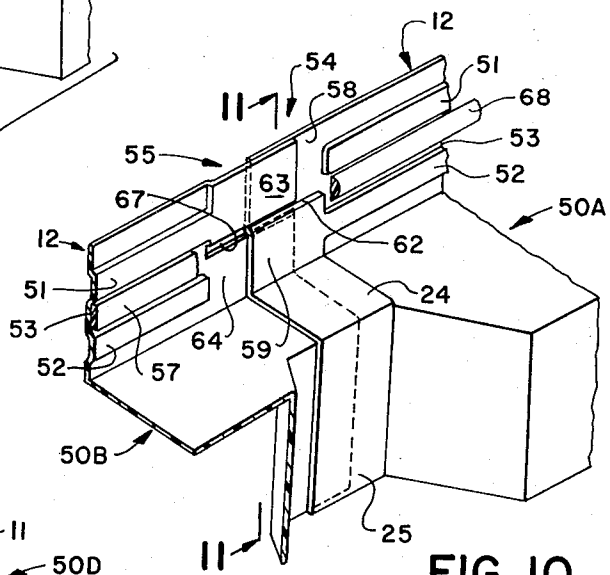


FIG. 10

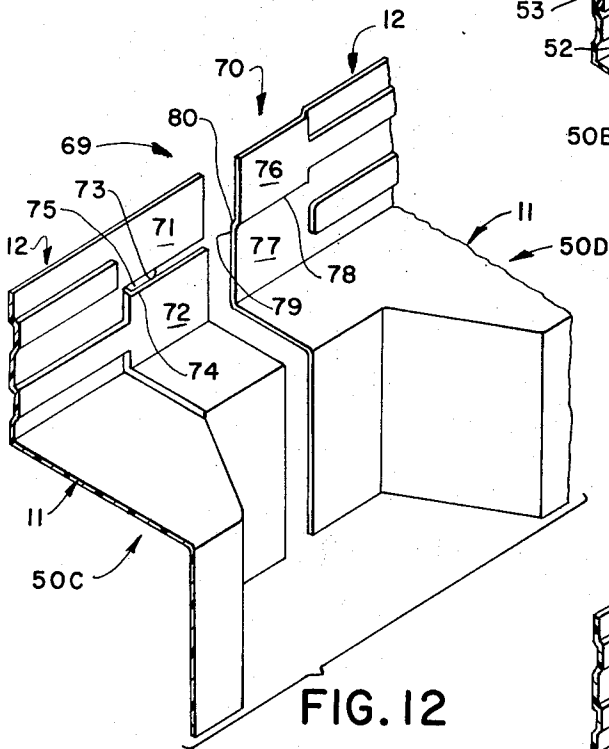


FIG. 12

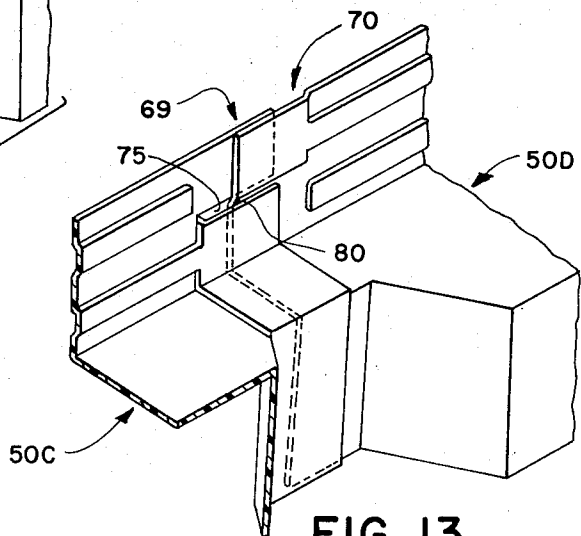


FIG. 13

FLASHING MEMBER AND WALL STRUCTURE UTILIZING THE SAME

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a building wall structure, and more particularly to a flashing member for use between the confronting transverse panel ends of upper and lower building panels of the wall structure.

2. Description of the Prior Art

End joints between upper and lower building panels presenting flat facing sheets have been formed by tongue and groove connections and by splice connections — both joints having exposed caulking. See U. S. Pat. Nos. 3,357,146 (GARTRELL 1967); 3,530,633 (SCOTT 1970). End joints between upper and lower building panels presenting profiled facing sheets have been formed by overlapping a facing sheet extension of the upper panel with the facing sheet of the lower panel. See U. S. Pat. No. 3,399,503 (PAYNE et al. 1968).

The exposed caulking of the GARTRELL and SCOTT joints accumulates dust and dirt and becomes unsightly after a relatively short period of time. The facing sheet extension profile of PAYNE et al does not always match the profile of the lower panel facing sheet because of spreading or gathering the facing sheets of either or both panels during their manufacture.

SUMMARY OF THE INVENTION

The principal object of this invention is to provide a flashing member for use at the end joint between upper and lower building panels, wherein an exposed downwardly extending leg of the flashing member has a profile corresponding to the profile of the exposed face of the building panels.

Another object of this invention is to provide a flashing member adapted for assembly in laterally adjusted, end-to-end overlapped and interlocked relation with others of the flashing member — the lateral adjustment between adjacent flashing members corresponding with that between adjacent building panels.

The present invention provides a flashing member formed from sheet material having a generally Z-shaped transverse profile. The flashing member comprises a horizontal leg, an upwardly extending rear leg, and a downwardly extending forward leg. The forward edge of the horizontal leg is contoured whereby the horizontal leg presents alternating wide sections and narrow sections. The forward leg extends downwardly from the contoured forward edge and follows the contour thereof.

One end of the flashing member may be countersunk whereby adjacent flashing members may be assembled in end-to-end overlapped relation. The opposite ends of the rear leg may be configured to provide an overlapped and interlocked connection between the rear legs of adjacent flashing members.

The rear leg also may be provided with spaced-apart ribs extending along the length of the rear leg and providing a sealant receiving channel therebetween.

The present invention also provides a building wall structure of the type having vertically presented upper and lower building panels having panel end portions overlapping a horizontal structural member, such as a girt or a subgirt of a building structural framework. The

upper and lower panels present confronting transverse panel ends. First and second fastener means secure the panel end portions of the upper and lower panels to the horizontal structural member. Each of the building panels comprise a liner sheet, a profiled exposed face having an other than flat facing sheet, and an insulating core.

In accordance with the present invention, an integral flashing member extends the width of the upper and lower panels and has a horizontal leg positioned between the confronting upper and lower transverse panel ends with a forward edge thereof presented outboard of the profiled facing sheet. The forward edge has a contour corresponding to that of the other than flat exposed face of the profiled facing sheet. The rear leg extends upwardly between the panel end portion of the upper panel and the subgirt, and the forward leg extends downwardly from the forward edge and follows the contour of the forward edge. The first fastener means secures the upper panel end portion and the rear leg of the flashing member to the structural member. In one embodiment, the downward extent of the forward leg is sufficient to hide the second fastener means from view. In an alternative embodiment, the second fastener means secures the forward leg and the panel end portion of the lower panel to the subgirt.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of the flashing member of this invention;

FIG. 2 is a cross-sectional view taken along the line 2—2 of FIG. 1;

FIG. 3 is a fragmentary front view of a building wall structure incorporating the flashing member of this invention;

FIG. 4 is a fragmentary isometric view of the wall structure of FIG. 3, with parts broken away to show details;

FIG. 5 is an isometric view of an alternative embodiment of the present flashing member;

FIG. 6 is a cross-sectional view taken along the line 6—6 of FIG. 5;

FIG. 7 is a cross-sectional view taken along the line 7—7 of FIG. 7—7 of FIG. 5;

FIG. 8 is a fragmentary cross-sectional view taken vertically through a wall structure incorporating upper and lower panels and the flashing member of FIG. 5;

FIG. 9 is a fragmentary isometric view illustrating the configuration of the opposite ends of adjacent ones of the flashing member of FIG. 5;

FIG. 10 is a fragmentary isometric view illustrating the flashing members of FIG. 9 with the ends thereof in engaged relation;

FIG. 11 is a cross-sectional view taken along the line 11—11 of FIG. 10;

FIG. 12 is a fragmentary isometric view, similar to FIG. 9, illustrating an alternative arrangement of the opposite ends of adjacent ones of the present flashing member; and

FIG. 13 is a fragmentary isometric view, similar to FIG. 10, illustrating the flashing members of FIG. 12 with the ends thereof in engaged relation.

DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

FIGS. 1 and 2 illustrate a flashing member 10 comprising a horizontal leg 11, a rear leg 12 and a forward

leg 13. The horizontal leg 11 presents alternating wide and narrow sections 14, 15 respectively between a straight rear edge 16 and a contoured forward edge 17. The rear leg 12 extends upwardly from the rear edge 16. The forward leg 13 extends downwardly from the contoured forward edge 17 and follows the contour thereof. The forward leg 13 presents alternating outboard segments 18 and inboard segments 19 and web segments 20 connecting adjacent ones of the outboard segments 18 and inboard segments 19.

The flashing member 10 presents a plain end 21 and an opposite countersunk end 22. The plain end 21 presents transverse end strips 12a, 11a and 13a. The countersunk end 22 presents corresponding transverse strips 23, 24, 25 of the rear, horizontal and forward legs 12, 11, 13 which are offset from the exterior surfaces of the legs 12, 11, 13 by at least one sheet thickness. As will be described, the countersunk end 22 permits adjacent flashing members 10 to be assembled in laterally adjusted, end-to-end overlapped relation.

The flashing member 10 may be formed from any suitable material. To facilitate fabrication, the flashing member may be formed from plastics by a vacuum forming process. For example, a suitable plastic material which provides the required weather resistance and which may be vacuum formed is offered by Eastman Chemical Products, Inc., a subsidiary of Eastman Kodak Company, under the trademark UVEX. The UVEX plastic comprises a cellulose acetate butyrate sheet which may be vacuum formed and is suitable for long term exterior exposure. The outer surface of the flashing member may have a molded-in pattern corresponding to the pattern, if any, of the exposed face of the building panels. Also, the flashing member may be painted or otherwise finished for color match with the building panels. Alternatively, the flashing member may be formed from metal by deep draw metal stamping.

FIG. 3 illustrates a fragment of a wall structure 26 assembled from an upper course 27 of building panels 28A, 28B and a lower course 29 of building panels 30A through 30C. The building panels 28 and 30 are secured to a building structural framework of which only a horizontal member 31 is illustrated. A flashing member 10 is positioned between the confronting transverse ends 32, 33 of the upper and lower panels 28, 30 respectively. The building panels 28, 30 have panel end portions 34, 35 respectively which overlap the subgirt 31 and are secured thereto as will be described.

Referring to FIG. 4, each of the building panels 28, 30 comprise a linear sheet 36, a profiled facing sheet 37 and an insulating core 38. The profiled facing sheet 37 may present, for example, alternating crests 39 and valleys 40, and inclined webs 41 connecting adjacent ones of the crests 39 and valleys 40. The insulating core 38 may comprise any of the well known organic or inorganic foamed plastics and may be foamed in situ or otherwise placed between the liner and facing sheets 36, 37. Alternatively, the core 38 may comprise batts of other insulating materials, such as glass fiber batts.

The panel end portions 35 of the lower panels 30A, 30B overlap the subgirt 31 and are secured thereto by fasteners 42. The flashing members 10A, 10B are installed with the horizontal webs 11 thereof overlying the transverse ends 33 of the panels 30. It will be observed in FIG. 4 that the countersunk end 22 of the

flashing member 10A overlaps the plain end 21 of the adjacent flashing member 10B. The width of the transverse strips 23, 24 and 25 of the countersunk ends 22 is such that the relative position of the adjacent flashing members 10A, 10B can be adjusted laterally to correspond with the laterally adjusted position of the building panels 30A, 30B.

It will be observed in FIG. 4 that the contoured forward edge 17 of the horizontal webs 11 is presented outboard of the exposed face of the building panels 30A, 30B. Also the forward legs 13 of the adjacent flashing members 10A, 10B are spaced-apart from the exterior face of the building panels 30 and extend downwardly from the contoured edge 17 for a distance sufficient to cover the fasteners 42. Moreover, the forward leg 13 follows the contour of the facing sheets 37 whereby, when the wall structure 26 is viewed from a distance, the contoured forward legs 13 are not visually discernible.

When the upper panel 28A is installed, the transverse lower end 32 thereof confronts the horizontal leg 11 of the flashing member 10A. Moreover, the panel end portion 34 of the panel 28A overlaps the rear leg 12 of the flashing member 10A. Fasteners 43 (only one illustrated) secure the upper panel 28A to the subgirt 31 and also secure the rear leg 12 of the flashing member 10A to the subgirt 31.

It will be observed in FIG. 4 that the insulating core 38 substantially entirely fills the space between the liner and facing sheets 36, 37 at the transverse panel ends 32, 33. Where the insulating core 38 comprises a closed-cell foam plastic, such as polyurethane, the exposed ends of the core 38 are essentially impervious to rain and moisture.

Alternative embodiments of the present flashing member will now be described with reference to FIGS. 5 through 13, wherein corresponding numerals will be employed to identify corresponding parts heretofore described.

FIGS. 5 through 7 illustrate a flashing member 50 wherein generally parallel upper and lower ribs 51, 52 are formed along the length of the rear leg 12. The ribs 51, 52 are spaced-apart and present a sealant receiving channel 53 therebetween. The rear leg 12 also is provided with a first end 54 and an opposite second end 55 which are configured to provide an end-to-end overlapping, interlocking connection between adjacent ones of the flashing members 50. It will best be observed in FIGS. 6 and 7 that the outboard segments 18, the inboard segments 19 and the web segments 20 of the forward leg 13 are inclined by at least one sheet thickness, inwardly beneath the contoured forward edge 17 of the horizontal leg 11. When the flashing member 50 is installed (FIG. 8) the segments 18, 19 and 20 of the forward leg 13 present lower edges 56 approximate to the profiled facing sheet 37 of the lower panels 30, whereby a relatively minor shadow will be cast by the lower edges 56. In this embodiment, the fasteners 45 extend through the inboard segments 19 and are exposed to view. The inboard segments 19 are deflected into engagement with the facing sheet 37.

It will be observed in FIG. 8 that a sealant 57 is provided in the lengthwise channel 53 of the rear leg 12. When the upper panel 28 is installed, the liner sheet 36 thereof will engage the sealant 57. When the panel 28 is secured to the member 31 by the fastener 44, the sealant 57 will be compressed between the liner sheet

36 and the rear leg 12 to provide a weathertight seal therebetween.

Referring to FIG. 9, the first end 54 of the rear leg 12 presents a pair of upper and lower end segments 58, 59. The upper end segment is flush with the rear leg 12. The lower end segment is offset from the rear leg 12 by one sheet thickness. The pair of upper and lower end segments 58, 59 present a pair of adjacent edges 60, 61 which extend parallel with the horizontal leg 11. An integral web 62 connects the adjacent edges 60, 61.

The opposite second end 55 presents a pair of upper and lower end segments 63, 64. The upper end segment 63 is offset from the rear leg 12 by one sheet thickness. The lower end segment 64 is flush with the rear leg 12. The upper and lower end segments 63, 64 present a pair of adjacent edges 65, 66 which are spaced-apart and define a slot 67 open at the end of the rear leg 12.

The overall arrangement is such that the ends 54, 55 of adjacent flashing members 50A, 50B (FIG. 10) are disposed in end-to-end overlapping and interlocking relation. It will be observed in FIGS. 10 and 11 that the web 62 of the flashing member 50A is received in the slot 67 of the adjacent flashing member 50B. The upper end segment 58 of the first end 54 is confined by the upper end segment 63 of the end 55, whereas the lower end segment 59 and the first end 54 confines the lower end segment 64 and the second end 55, thereby to provide an interlocking of the first and second ends 54, 55 of the adjacent flashing members 50A, 50B.

As shown in FIG. 10, the channel 53 (flashing member 50B) may be provided with a preformed sealant strip 57. Alternatively, the channel 53 (flashing member 50A) may be provided with a bead 68 of sealant material. As explained with reference to FIG. 8, the sealant 57 (68) is compressed between the liner sheet 36 of the panel 28 and the channel 53, when the panel 28 is installed. In order to avoid non-uniform compression of the sealant 57 (68), the outboard surfaces of the upper and lower beads 51, 52 of the upper end segment 63 and of the lower end segment 59 reside in a common plane (not illustrated).

FIGS. 12 and 13 illustrate an alternative arrangement of first and second ends 69, 70 of adjacent flashing members 50C, 50D. In this arrangement, the first end 69 presents upper and lower end segments 71, 72 wherein the upper end segment 71 is flush with the rear leg 12 and wherein the lower end segment 72 is offset from the rear leg 12 by one sheet thickness. The upper and lower end segments 71, 72 present adjacent edges 73, 74 which are spaced-apart and define a slot 75 extending parallel with the horizontal leg 11 and which is open at the end of the rear leg 12.

The opposite second end 70 presents upper and lower end segments 76, 77 wherein the upper end segment 76 is offset from the rear leg 12 by one sheet thickness and wherein the lower end segment 77 is flush with the rear leg 12. The upper and lower end segments 76, 77 present adjacent edges 78, 79. An integral web 80 connects the adjacent edges 78, 79.

The overall arrangement is such that, as shown in FIG. 13, the web 80 of the flashing member 50D is received in the slot 75 of the flashing member 50C, thereby to provide an interlocking of the ends 69, 70.

We claim:

1. A flashing member formed from sheet material and having a generally Z-shaped transverse profile, said flashing member comprising:

a horizontal leg having a rear edge and a contoured forward edge, said horizontal leg presenting alternating narrow sections and wide sections along the length thereof;

a rear leg extending upwardly from said rear edge; and

a forward leg extending downwardly from said contoured forward edge and following the contour thereof.

2. The flashing member of claim 1 where said sheet material comprises a weather resistant plastic.

3. The flashing member of claim 1 wherein said rear leg and said forward leg are co-extensive in length with said horizontal leg.

4. The flashing member of claim 1 including spaced-apart, parallel ribs extending along the length of said rear leg and providing a sealant receiving channel therebetween.

5. The flashing member of claim 1 wherein said forward leg is inclined inwardly beneath said contoured forward edge.

6. The flashing member of claim 1 wherein at one end of said flashing member, corresponding transverse strips of the rear, horizontal and forward legs are offset from the exterior surfaces of the legs by one sheet thickness, whereby said flashing member is adapted to be assembled in end-to-end overlapping relation with others of said flashing member.

7. A Z-shaped flashing member formed from sheet material and including a horizontal leg having a forward leg and a rear leg extending in opposite directions from opposite longitudinal edges of said horizontal leg, said rear leg including:

a first end presenting a pair of upper and lower end segments, the upper end segment being flush with said rear leg, and the lower end segment being offset from said rear leg by one sheet thickness;

an opposite second end presenting a pair of upper and lower end segments, the upper end segments being offset from said rear leg by one sheet thickness, and the lower end segment being flush with said rear leg;

said upper and lower end segments of each said pair presenting adjacent edges extending parallel with said horizontal legs;

a web connecting said adjacent edges of one said pair of upper and lower end segments; and

the adjacent edges of the other said pair of upper and lower end segments being spaced-apart and defining a slot open at one end of said rear leg and adapted to receive the web presented at the end of an adjacent flashing member.

8. The flashing member of claim 7 wherein end segments of said horizontal leg and said forward leg adjacent to said first end of said rear leg are offset from the exterior surfaces of said horizontal leg and said forward leg by one sheet thickness whereby said flashing member is adapted to be assembled in end-to-end overlapped and interlocked relation with others of said flashing member.

9. The flashing member of claim 7 including spaced-apart, upper and lower ribs extending along the length of said rear leg and providing a sealant receiving channel therebetween.

10. The flashing member of claim 9 wherein the surfaces of said upper and lower ribs, said lower end segment of said first end of said rear leg, and said upper end segment of said opposite second end said rear leg reside in a common plane.

11. A building wall structure including vertically presented upper and lower building panels having panel end portions overlapping a horizontal member of a building structural framework, said upper and lower building panels presenting confronting upper and lower transverse panel ends; said panels comprising a liner sheet, a profiled facing sheet, and an insulating core, said profiled facing sheet presenting alternating crests and valleys and inclined webs connecting adjacent ones of said crests and said valleys;

fastener means for securing between of said panel end portions to said horizontal member;

a flashing member extending the width of said upper and lower transverse panel ends and including

a horizontal leg positioned between said confronting upper and lower transverse panel ends, and presenting a forward edge outboard of said profiled facing sheet, said forward edge having a contour corresponding to that of said profiled facing sheets;

a rear leg extending upwardly between the panel end portion of said upper panel and said horizontal member; and

a forward leg extending downwardly from said forward edge and following the contour thereof.

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12. The wall structure of claim 11 wherein the fastener means which secures the upper panel end portion to said horizontal member also secures said rear leg to said horizontal member.

13. The wall structure of claim 11 wherein said rear leg and said forward leg are co-extensive in length with said horizontal leg.

14. The wall structure of claim 11 wherein the fastener means for the panel end portion of said lower panel is hidden from view by said forward leg.

15. The wall structure of claim 11 wherein said insulating core comprises a closed cell foamed plastic which substantially entirely fills the space between the liner sheet and the facing sheet of each of said panels at the transverse ends thereof.

16. The wall structure of claim 11 wherein said forward leg is inclined inwardly beneath said forward edge and presents a lower edge approximate to the profiled facing sheet of said lower panel.

17. The wall structure of claim 16 wherein the fastener means which secures the panel end portion of said lower panel to said subgirt also secured said forward leg to said horizontal member.

18. The wall structure of claim 11 including spaced-apart parallel ribs formed along the length of said rear leg and providing a channel therebetween, and a sealant disposed along the length of said channel and engaged by said liner sheet.

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