United States Patent [19]

Vance

[11] 3,830,029

[45] Aug. 20, 1974

[54] SKYLIGHT CONSTRUCTION

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[22] Filed: **Oct. 18, 1972**

[21] Appl. No.: **298,660**

[52] **U.S. Cl.** **52/395,** 52/464, 52/669, 52/302

[51] **Int. Cl.** **E04c 1/24**

[58] **Field of Search** ..... 52/11, 90, 15, 495, 721, 52/483, 494, 474, 14, 308, 461, 95, 758 A, 463, 302, 464, 669

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Attorney, Agent, or Firm—Arnold B. Silverman

[57] **ABSTRACT**

A skylight having a plurality of interconnected elongated primary structural members and secondary structural members defining panel receiving openings. Panels having marginal portions secured to the primary and secondary structural members. The primary and secondary structural members having first drainage channel means. The primary and secondary structural members having second drainage channel means extending transversely outwardly beyond the first drainage channel means. Second drainage channel means of either the primary or the secondary structural members having a discharge outlet in overlying communicating relationship with respect to the second drainage channel means of the other of the primary and secondary structural members. The first drainage channel means may have at least one upwardly open channel member and the second drainage channel means may have at least two upwardly open channel members.

Drip resisting means disposed on an overlying second drainage channel for resisting flow of water along the exterior of the second drainage channel in a direction away from the discharge outlet. The drip resisting means have a portion in overlying relationship with respect to the underlying second drainage channel. The second drainage channels are so proportioned and positioned as to permit freedom of thermally induced expansion and contraction without loss of communication between the overlying and underlying second channel members.

8 Claims, 11 Drawing Figures

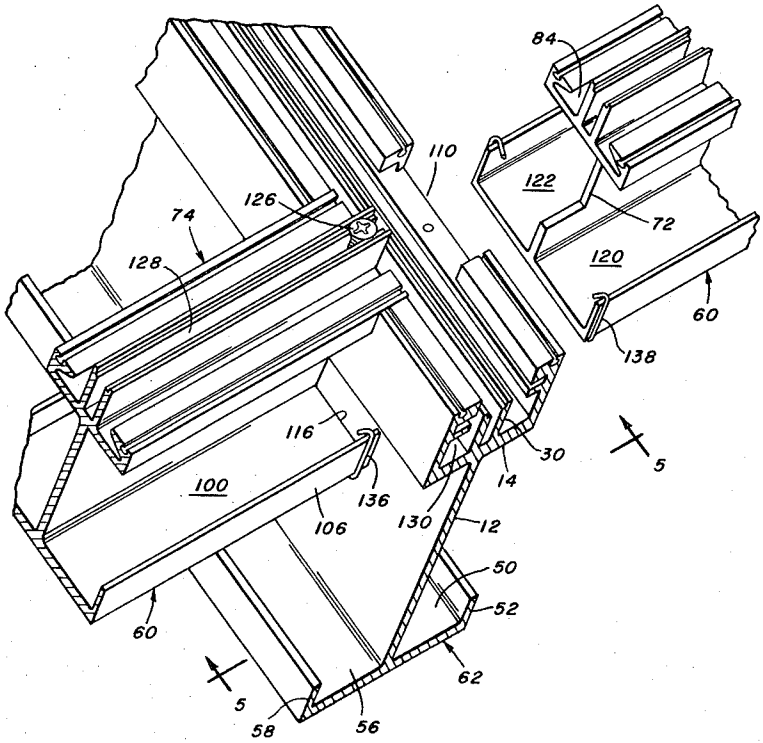


FIG. 1.

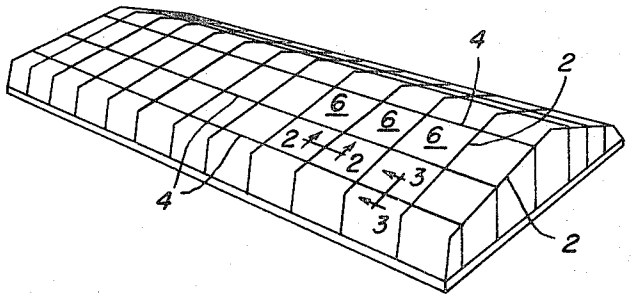


FIG. 2.

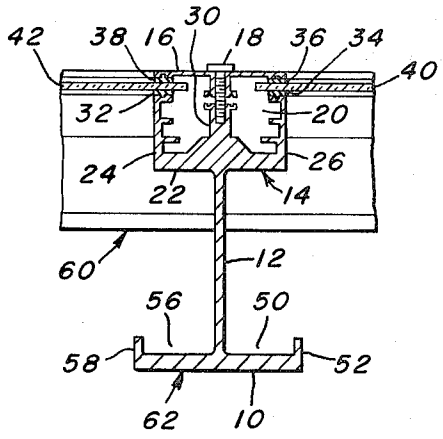


FIG. 3.

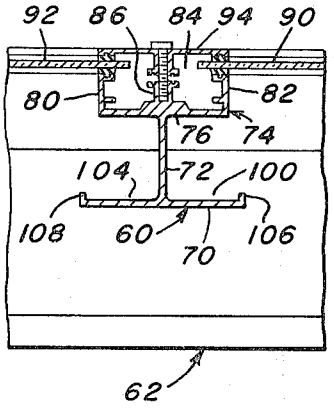
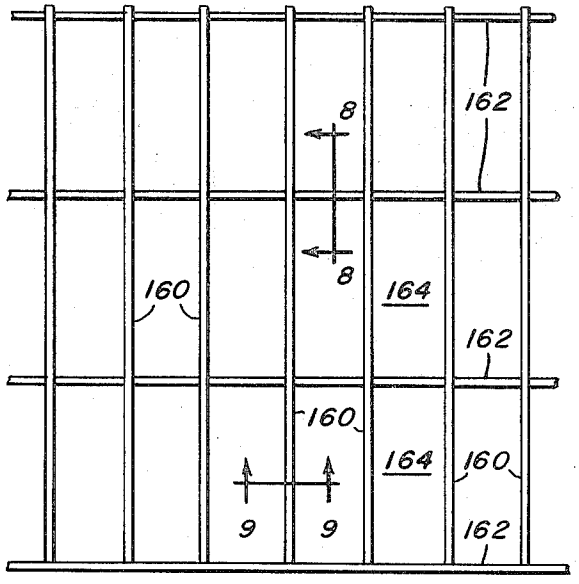


FIG. 7.



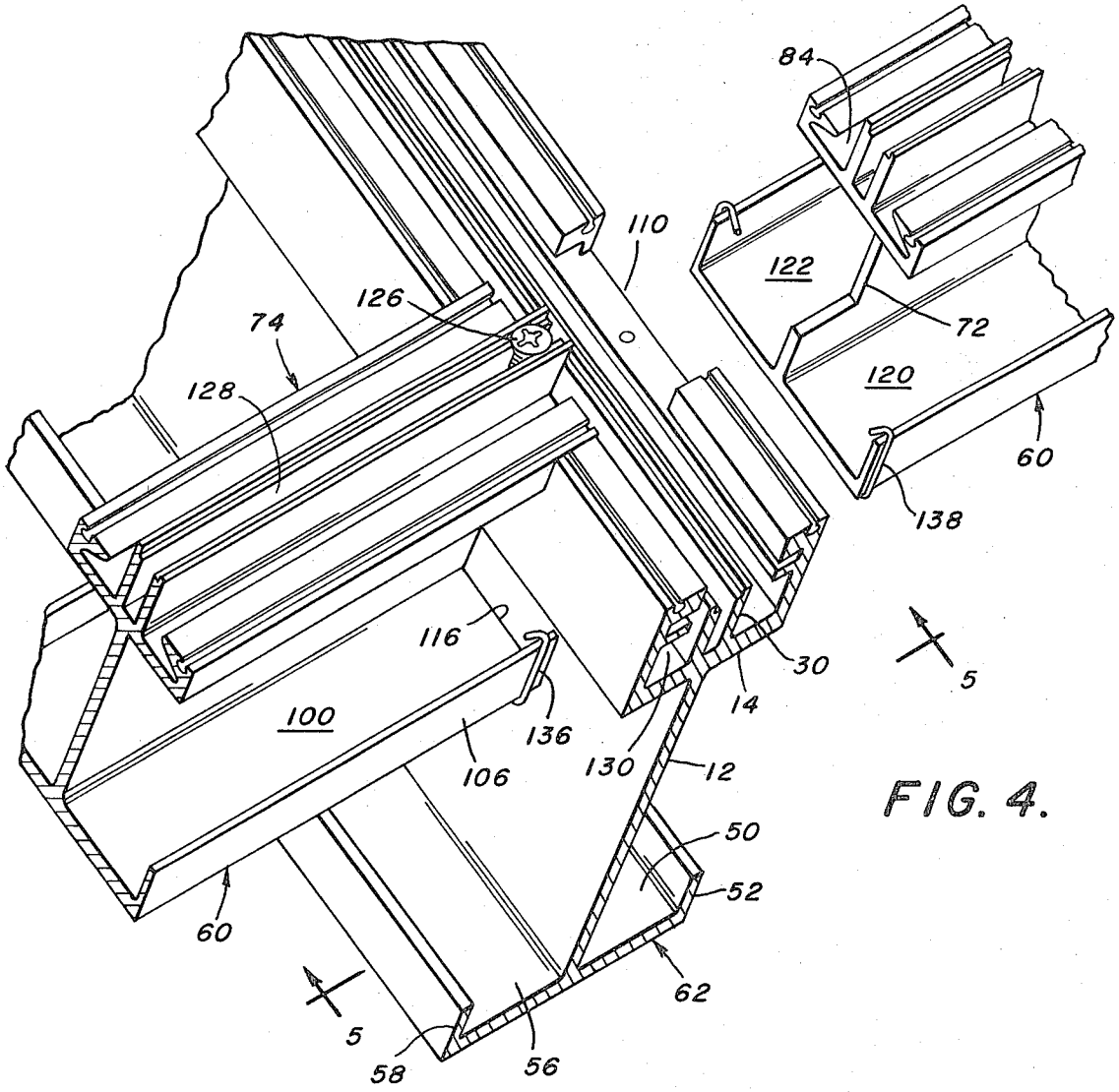


FIG. 4.

FIG. 5.

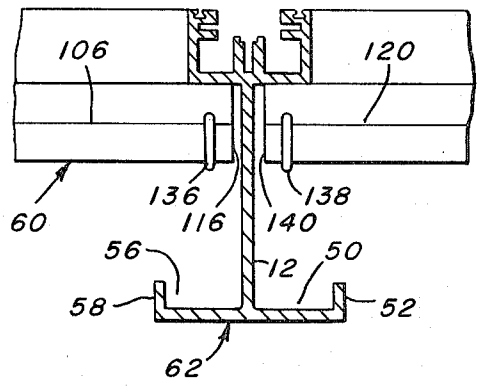


FIG. 6.

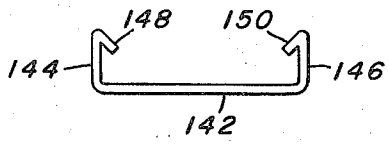


FIG. 6a.

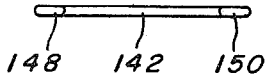


FIG. 8.

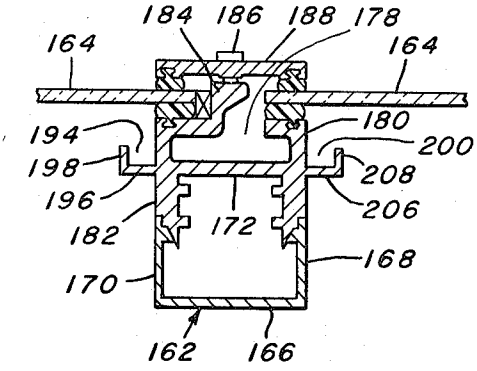


FIG. 9.

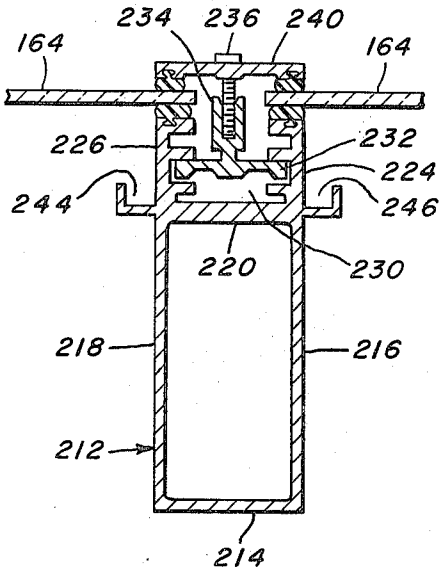
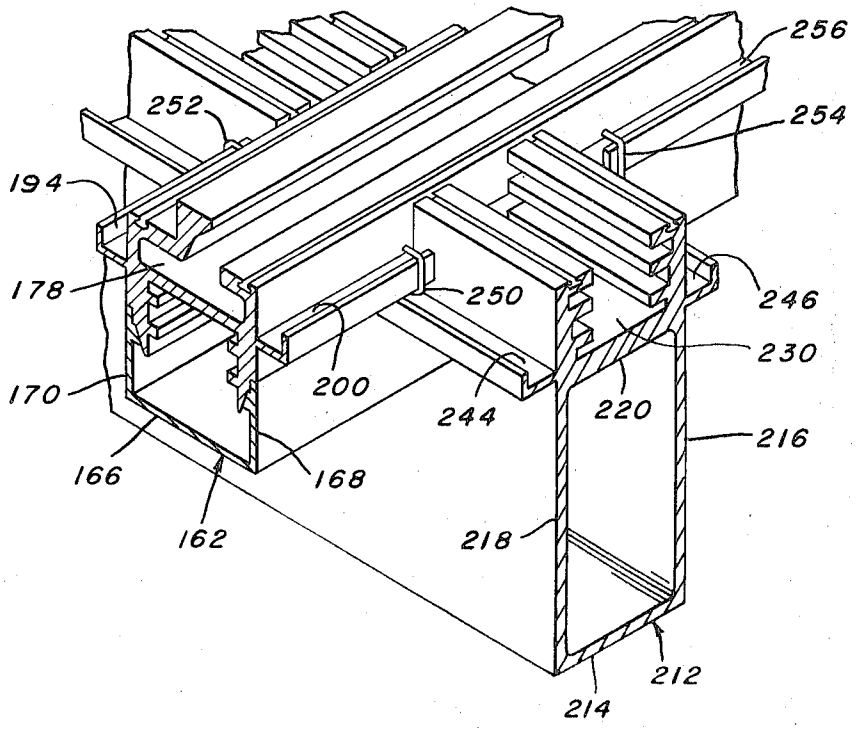


FIG. 10.



SKYLIGHT CONSTRUCTION

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to building constructions and more specifically it relates to skylights having integral means for transporting and harmlessly discharging undesired condensation and infiltration water.

2. Description of the Prior Art

In modern forms of building construction, various types of skylights employed as roof sections, wall sections and in other desirable building uses have found ready acceptance by the building industry and the public in general. Not only are such skylight constructions aesthetically pleasing, but, in addition, they are functional in that they provide increased lighting for enclosed portions of the building. Also, some skylights offer the additional advantage of being movable to permit portions to be retracted when weather conditions are favorable to expose underlying regions which may contain swimming pools, patios and the like.

In modern skylight constructions, framing members are frequently made of aluminum or similar rigid materials and the panel members are frequently glass or a suitable plastic. This results in a structure in which components may have substantially different coefficients of thermal expansion. As a result, sealing against water infiltration becomes an extremely difficult problem. Also, the fact that the sun's rays are permitted to pass through skylight panels, coupled with other thermal characteristics inherent in such structures, serves to contribute to substantial condensation of moisture.

As drippage of both infiltration moisture and condensation moisture onto regions underlying or adjacent such skylight structures cannot generally be tolerated, the moisture problem has created a substantial obstacle to increased use of modern skylight structures.

SUMMARY OF THE INVENTION

This invention has solved the above-described problems in connection with undesired moisture in skylight constructions.

The skylight construction of the present invention provides a plurality of interconnected primary structural members and secondary structural members which are secured to marginal portions of skylight panel members. The primary and secondary structural members have first drainage channel means. The primary and secondary structural members have second drainage channel means extending transversely outwardly beyond the first drainage channel means. The second drainage channel means of either the primary or secondary structural members have a discharge outlet in overlying communicating relationship with respect to the second drainage channel means of the other of the primary and secondary structural members. Water flowing from the overlying second drainage channel means into the underlying second drainage channel means will be carried by the underlying second drainage channel means to a position from which it may be harmlessly discharged.

Drip resisting means such as a clip member secured over the exterior surface of the second drainage channel means generally adjacent to the discharge outlet resists flow of water along the exterior of the second drainage channel means in a direction away from the discharge outlet. This serves to insure that any water having a tendency to migrate in this direction will be blocked and will fall into the underlying second drainage channel means.

It is an object of this invention to provide a skylight construction wherein a framework of panel supporting elements will be provided with a first integrally formed drainage channel which serves as a primary receiving member for water infiltrating through glazing seals.

It is another object of this invention to provide such a skylight wherein secondary drainage channels having at least a portion positioned transversely outwardly of the first drainage channel will provide integral means for harmless discharge of condensation moisture.

It is another object of this invention to provide such drainage channel structures integrally within the skylight structural framework in such a fashion that relative thermal expansion and contraction of the framing members will not disrupt the continuity of the various drainage channel connections.

It is another object of this invention to provide such a structure which may be economically fabricated and assembled employing conventional framing member extrusion technology, conventional panel members and standard accepted glazing practices.

It is yet another object of this invention to provide such a network of drainage channels which, when assembled, will not be readily visible to the ordinary observer and will function efficiently under the influence of gravity to harmlessly discharge condensation and infiltration moisture.

These and other objects of the invention will be more fully understood from the following description of the invention, on reference to the illustrations appended hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective partially schematic illustration of one form of skylight suitable for use in a roof.

FIG. **2** is a cross sectional illustration taken through **2—2** of FIG. **1** showing a joint created by a primary structural member of this invention.

FIG. **3** is a cross sectional illustration taken through **3—3** of FIG. **1** showing a secondary structural member of this invention.

FIG. **4** is a perspective, partially exploded view of a form of intersecting joint of this invention.

FIG. **5** is a cross sectional illustration of the joint shown in FIG. **4** taken through **5—5** with the figure altered so as to show the joint as a unit and not in exploded form.

FIGS. **6** and **6***a* are front elevational top plan views of a drip resisting clip member employed in this invention.

FIG. **7** is a top plan view of a form of roof skylight contemplated by this invention.

FIG. **8** is a cross sectional view taken through **8—8** of FIG. **7** showing a modified form of secondary structural member of this invention.

FIG. **9** is a cross sectional illustration taken through **9—9** of FIG. **7** showing a modified form of primary structural member of this invention.

FIG. **10** is a perspective illustration of an intersecting joint employing the type of structural members shown in FIGS. **8** and **9**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Considering the drawings in greater detail with particular reference to FIG. **1**, there is shown a form of upwardly projecting skylight employed in a roof structure. The skylight has a structural network composed of a plurality of primary structural members **2** which are interconnected with a plurality of secondary structural members **4.** The framework formed by the primary structural members **2** and secondary structural members **4** defines a plurality of openings and have panels **6** secured thereto in a manner to be described in greater detail below. The term "panel" as used herein shall refer to all forms of panels which are partially or totally transparent or translucent and shall include panels which are composed of glass, plastic, combinations thereof and other suitable materials, regardless of panel thickness, shape or peripheral configuration. The term "skylight" as used herein shall refer to building structures and portions thereof having interconnected framing members to which a plurality of panels are secured and shall include, without being limited to, such assemblies employed in roofs, ceilings, walls, lean-tos and other structurally advantageous uses.

Referring now to the form of primary structural member shown in FIG. **2**, it is seen that the member **62** has a base plate **10,** an upwardly directed web-like vertical wall **12** and an upper portion **14.** An overlying glazing cap **16** is secured to the upper portion **14** by means of fastener **18,** which in the form shown is a screw. (While for clarity of illustration the gasket members which would be provided on opposed sides of the shank of fastener **18** between opposed flanges of fastener receiving channel **30** and the glazing cap fastener channel have not been shown, it will be appreciated that such gaskets are preferably provided for improved sealing.) The upper portion **14** has a first drainage channel **20** which is defined by a channel base plate **22** and a pair of upstanding channel walls **24, 26.** It will be appreciated that the web-like vertical wall **12** has an upper extremity disposed below the first drainage channel **20.** In the form shown, the fastener receiving channel **30** projects upwardly from channel base plate **22** and divides the first drainage channel **20** into two separate sub-channels. The upper extremities of channel walls **24, 26** are provided with glazing beads **32, 34,** respectively, which may be of conventional material such as neoprene, for example. Glazing cap **16** has opposed transverse sides provided with glazing beads **38, 36** which are generally in spaced overlying relationship with respect to glazing beads **32, 34,** respectively. A first panel **40** is secured between glazing cap **16** and the primary structural member with glazing beads **34, 36** being in compressive sealing engagement with a marginal portion of the panel **40.** Similarly, second panel **42** has a marginal portion compressively secured in sealing relationship with glazing beads **32, 38.**

Referring once again to FIG. **2,** the second drainage channels of the primary structural member **62** will now be considered. One second drainage channel **50** is upwardly open and is defined by the lower portion of web-like wall **12** in cooperation with a portion of base plate **10** and an upwardly directed outer wall **52.** The second drainage channel **50** preferably has a cross sectional area which is less than the cross sectional area of first drainage channel **20.** It is noted that outer wall **52** is positioned transversely outwardly of generally overlying first drainage channel wall **26.** This facilitates entrapment of any moisture dripping from channel wall **26** or channel base plate **22** as it will tend to fall within second drainage channel **50.** It is preferred that the second drainage channel outer wall **52** be disposed about 1/8 to 7/8 inch transversely outwardly of a plane taken through the inner surface of channel wall **26,** which is the closer of the two first channel defining walls **24, 26.** Similarly, another second drainage channel **56** is defined by a portion of central web-like wall **12,** a portion of base plate **10** and an upwardly directed outer wall **58.** This channel **56** has outer wall **58** positioned transversely outwardly of first drainage channel wall **24.**

Designated generally by the reference numeral **60** in FIG. **2** is the secondary structural member which is intersecting with the primary structural member **62.** As is exemplified by the skylight shown in FIG. **1,** for many geometrical skylight constructions the intersection between the primary and secondary structural members will be substantially perpendicular. It will be appreciated, however, that for numerous constructions intersections may depart slightly or even radically from the perpendicular intersection shown. This will be dictated, in part, by the structural needs, desired overall geometric configuration and the peripheral configuration of the panel elements. Also, while in the preferred form of the invention a major number of intersections between the primary and secondary structural members will have secondary elements pass entirely through a milled notch in the primary element, some such joints will have the secondary member terminate at or adjacent the primary member. For convenience of reference herein, both such joints shall be referred to generically as intersecting joints.

Referring now to FIG. **3,** the secondary structural member **60** will be considered in greater detail. It is noted that, in the form shown, the secondary structural member **60** has a substantially reduced height as compared with the primary structural member **62.** As will be described below in greater detail, this results in increased efficiency of water transfer between the second drainage channels. The secondary structural member has a base plate **70,** an upwardly directed central web-like wall **72** and an upper portion **74.** The upper portion **74** has a channel base plate **76** which cooperates with upstanding channel walls **80, 82** to define a first drainage channel **84.** First drainage channel **84** is subdivided into a pair of smaller channels by fastener receiving channel **86.** The panels **90, 92** are secured to the secondary structural member **60** by means of glazing cap **94** in a fashion substantially identical with the manner in which the panels **40, 42** shown in FIG. **2** are secured to the primary structural member **62.**

It is noted that the secondary structural member **60** has a pair of second drainage channels **100, 104** which are defined by portions of central web-like wall **72** and portions of base plate **70** in cooperation with outer upwardly directed walls **106, 108,** respectively. It is noted that second drainage channels **100, 104** have portions spaced transversely outwardly with respect to channel walls **82, 80,** respectively. This facilitates accumulation of any water dripping from upper portion **74** within second drainage channels **100, 104.**

It will be appreciated that any infiltrating moisture seeping through the respective seals on the marginal portions of panels **40, 42, 90, 92** will fall into first drain-

age channels **20, 84.** Also, a certain amount of condensation moisture will be received within these channels **20, 84.** In general, the primary structural members **62** will provide a continuous gravity flow path to a gutter or downspout or directly to sill portions provided with suitable drainage means such as weep holes, for example. This facilitates gravity flow of infiltration and condensation moisture continuously from the uppermost end of a primary structural member **62** to a position from which the water may be harmlessly discharged. Transversely positioned secondary structural members **60** may also be provided with continuous drainage channels to gutters or downspouts or sill located water discharge assemblies. It will generally be preferable to provide for water within a secondary structural member first drainage channel to be transferred to the first drainage channel of the primary structural member **62.** This may readily be accomplished at all intersections where the secondary structural member **60** terminates at the primary structural member.

Referring now to FIG. **4,** an intersecting joint between a primary structural member **62** of the type shown in FIGS. **2** and **3** with a secondary structural member **60** of the type shown in FIGS. **2** and **3** will be considered. It is noted that in this form of intersection that the secondary structural member **60** has an upper portion **74** which passes continuously through a notch **110** which has been milled into the upper portion **14** of primary structural member **62.** This form of intersection facilitates the use of a narrow "sight line" as the secondary structural member **60** may be a continuous member which spans three or more primary structural members **62** and in this fashion distributes the load over such primary structural members **62.** In this construction, the first drainage channel **84** of the secondary structural member **60** will pass continuously across the first drainage channel of primary structural member **62.** The contents of channel **84** will be discharged at one of its free ends which is positioned in communication with a first drainage channel of a primary structural member.

Considering now FIGS. **4** and **5** and the second drainage channels of members **60, 62,** it is noted that second drainage channel **100** of secondary structural member **60** terminates in a discharge outlet **116** which is in spaced overlying relationship with respect to second drainage channel **56** of primary structural member **62.** As a result, water flowing under the influence of gravity within the second drainage channel **100** will be discharged from this overlying channel into underlying second drainage channel **56.** Similarly, second drainage channel **50** will receive any water accumulated within second drainage channels **122, 120** of the right hand portion of secondary structural member **60.** It will be appreciated that the relative inclination of the secondary structural member will determine in which direction gravity flow of the water will be initiated within the second drainage channels **100, 120, 122, 104** (not shown in this view). (In general, a slope of about at least 1/4 inch per lineal foot of structural member is preferred to facilitate efficient gravity flow.) Regardless of direction of flow, the water will accumulate within second drainage channels **50, 56** of a primary structural member **62** and will be harmlessly discharged through adjacent communicating channels of the primary structural members **62** to a gutter, downspout, sill assembly or similar water disposal system.

While various means of joining the intersecting primary and secondary structural members **62, 60** may be employed, one convenient means is shown in FIG. **4** wherein a screw fastener **126** passes downwardly through fastener channel **128** of secondary structural member **60** and into an underlying flange portion **130** of primary structural member **62.** Another effective means of joining these intersecting members would be to employ the key locking assembly disclosed in my copending application Ser. No. 181,082, filed Sept. 16, 1971 now U.S. Pat. No. 3,734,550.

Referring now to FIGS. **4, 5, 6** and **6*a***, another advantageous feature of the present invention will be considered. As is shown in FIGS. **4** and **5,** the overlying second drainage channels **100, 120** are provided with drip resisting means **136, 138** which are positioned intermediate outer walls **52, 58** and discharge outlets **116, 140.** In the event that there is any tendency for moisture to flow along the exterior surface of the second drainage channel defining walls in a direction away from the discharge outlet **116, 140,** this moisture will contact the barrier established by the drip resisting beads **136, 138.** Drip resisting beads **136, 138** will cause the water to drop downwardly into the underlying second drainage channels **56, 50.** In a preferred form shown in FIGS. **6** and **6*a***, the drip resisting bead is a wire clip having a base portion **142,** a pair of upstanding legs **144, 146** and reentrant flanges **148, 150.** Other forms of construction which serve to break the continuity of the respective exterior surfaces may function just as effectively. For example, notches or recesses or integrally formed protrusions may be provided within the outer surfaces in order to provide the desired barrier configuration. In the form shown in FIG. **4,** the drip resisting beads are merely frictionally retained on the basis of the clip interlocking action. If desired, suitable fastener or joining means such as welding, for example, may be employed in order to insure bead retention in the desired location.

Referring once again to FIG. **5,** another feature of the invention will be considered. It will be noted that the discharge outlets **116, 140** are in spaced overlying relationship with respect to underlying second discharge channels **50, 56** and are spaced transversely outwardly from upwardly directed web-like wall **12.** Similarly, the discharge openings **116, 140** are spaced transversely inwardly with respect to second drainage channel defining walls **52, 58.** As a result, any change in dimension of the overlying second drainage channels **100, 120** as a result of thermal expansion or contraction will not be so substantial as to destroy the effective communication between the overlying and underlying second drainage channels. In view of the substantial differences in thermal properties of the framing and panel members, coupled with the exposure of the members to a wide range of external temperatures, this is a significant benefit of the present invention as it insures effective drainage of undesired infiltration and condensation moisture regardless of the range of thermal conditions to which the assembly will be exposed. In conventional commercial practice skylight systems are frequently designed to perform effectively over a temperature range of 200° Fahrenheit.

Referring now to FIG. **7,** there is shown a roof section having a plurality of primary structural members **160** connected to a plurality of secondary structural members **162.** A plurality of panels **164** have marginal por-

tions secured to the framework established by primary and secondary structural members **160, 162** and covering the openings defined thereby.

Referring now to FIGS. **7, 8** and **9,** there is shown another embodiment of the invention which incorporates the same basic principles as the embodiment shown in FIGS. **1** through **6,** but has a tubular body portion of generally rectangular configuration as opposed to the web-like body portion of the embodiment previously discussed. (While for convenience of illustration the preferred tubular body with a rectangular configuration has been shown, other tubular shapes may be employed, if desired.) Considering now the secondary structural member **162** shown in FIG. **8,** it is seen that the member has a base wall **166,** a pair of parallel upwardly directed sidewalls **168, 170** and a top wall **172.** In the form shown, it is noted that the secondary structural member **162** is composed of two separate pieces which have been assembled to create the tubular shape. If desired, the tubular shape may be provided as a unitary structure rather than being assembled from separate components. A first drainage channel **178** is defined by top wall **172** and a pair of upwardly directed channel walls **180, 182.** Channel wall **182** has a flange **184** which is directed inwardly and upwardly in order to receive fastener **186** which extends through and retains glazing cap **188.** It is noted that in this embodiment of the invention the first drainage channel is unitary.

Referring once again to FIG. **8,** it is seen that second drainage channel **194** is defined by channel wall **182** in cooperation with bottom wall **196** which emerges therefrom and outer vertical wall **198** which is oriented substantially parallel to the outer surface of channel wall **182.** Similarly, second drainage channel **200** is defined by channel wall **180** in cooperation with bottom wall **206** and outer vertical wall **208.** It is noted that, in the form shown, the second drainage channels **194, 200** are disposed at substantially the same elevation and are disposed at a position spaced upwardly from base **166.** If desired, the second channels **194, 200** may be positioned downwardly from the position shown and formed by combination with sidewalls **168, 170,** rather than walls **180, 182.** Similarly, in the form shown in FIG. **4,** if desired, the second drainage channels may be formed by independent members disposed upwardly on web-like divider wall **12.** As was true of the prior embodiment, the second drainage channels **194, 200** have portions extending transversely outwardly beyond the first drainage channel **178.**

In the form shown in FIG. **8,** the panels **164** are secured by conventional glazing means incorporating glazing beads and the corresponding cap member **188.**

Referring now to FIG. **9,** the primary structural member **212** will be considered. Primary structural member **212** has a base **214,** upstanding sidewalls **216, 218** and a top wall **220** which are formed as a unit. The top wall **220** cooperates with channel walls **224, 226** to define first drainage channel **230.** Insert member **232** has fastener receiving channel **234** which receives fastener **236** to join glazing cap **240** to the primary structural member **212.** Second drainage channels **244, 246** are provided in a fashion similar to those shown in FIG. **8.**

The form of structural members **162, 212** shown in FIGS. **8** and **9** may be modified by elimination of top walls **172, 220,** if desired. This results in the first drainage channel having a depth which is generally equal to the height of the structural member. As with other forms of the invention, the second drainage channels may be placed at the level which is adapted to produce the most efficient drainage of condensation moisture for the particular end use position and environment. In the form shown in FIGS. **2** and **3,** the second drainage channels are positioned at the bottom of the structural member, while in the form shown in FIGS. **8** and **9** they are spaced upwardly.

Referring now to FIG. **10,** a form of through intersection wherein portions of the secondary structural member **162** pass through a milled notch in the primary structural member **212** is illustrated. The intersection is such that first drainage channel **178** does not communicate with first drainage channel **230.** (If desired, however, openings may be provided in top wall **172** to permit discharge from channel **178** to channel **230** at this intersection.) The secondary structural member **162** has secondary drainage channels **194, 200** in overlying communicating relationship with respect to second drainage channel **244** of primary structural member **212.** Wire drip beads **250, 252, 254** are secured to the overlying second drainage channels **200, 194, 256** at a position over the underlying second drainage channels in order to facilitate efficient transfer of water from the overlying channel to the underlying channel.

It will be appreciated that while various suitable materials may be employed in forming the primary and secondary structural members of the present invention, extrudable, durable, strong materials such as aluminum or plastic will generally be preferred. Not only are these materials economical in terms of material cost, but they are also adapted for use in economical extrusion processes which establish intricate profiles with relative ease. In general, it is preferred the primary and secondary structural members of this invention be provided with a substantially uniform cross sectional configuration throughout their length except at and adjacent intersections. With respect to the panel members, in conventional skylight constructions these will generally be made of plastic such as cold formed or thermoformed acrylics or glass such as wire glass, tempered glass, laminated glass or insulated units of wire glass. A suitable acrylic is that sold under the trademark "Plexiglass" by Rohm and Haas. The panels may assume various peripheral configurations and various profile shapes. For example, the panels may be formed into upwardly domed shapes, curved shapes or other desired configurations. Similarly, depending on the particular installation, the periphery of the panels may be rectangular, pentagonal, hexagonal or any other desired geometric configuration whether symmetrical or not. Also, various structural frameworks in the form of vaults, domes, lean-tos, single and multiple ridge roof structures, pyramids, polygons and other suitable shapes may be provided.

It will be appreciated that the present invention provides an aesthetically pleasing, structurally efficient skylight construction adapted for use with a wide range of framing and panel materials. The structure is adapted for use with conventional framing techniques, panel forming techniques, glazing practices and ease and economy of fabrication. This structure provides efficient discharge of infiltration and condensation mois-

ture within concealed interconnected first drainage channels. Also, supplemental collection and harmless discharge of condensation moisture is provided by means of the second drainage channels which are also concealed from view of the ordinary observer. Improved efficiency of the second discharge channels is obtained by means of the drip resisting structures. Various forms of intersecting joints are provided permitting flexibility of design and use of frequently desired narrow sight lines with respect to the secondary structural members. Finally, freedom of thermal expansion and contraction have been provided in such a fashion as to avoid disruption of the continuity of the various discharge channels and communication therebetween.

While for purposes of convenience herein, terms such as "vertical," "upwardly," "outwardly" and similar expressions of direction and orientation have been used, it will be appreciated that these have been employed only for convenience of description and are not limiting of the basic invention.

Whereas particular embodiments of the invention have been described above for purposes of illustration, it will be evident to those skilled in the art that numerous variations of the details may be made without departing from the invention as defined in the appended claims.

I claim:

1. A building construction comprising

a skylight having a plurality of interconnected elongated primary structural members and secondary structural members,

said primary and secondary structural members being composed of substantially rigid extruded metal,

at least one panel member having marginal portions secured to said primary and secondary structural members,

said primary structural members having greater height than said secondary structural members,

said primary and secondary structural members having first drainage channel means,

said first drainage channel means having at least one upwardly open channel member defined by a base wall and a pair of upstanding walls and being oriented generally longitudinally of said structural members,

said primary and secondary structural members having second drainage channel means extending transversely outwardly beyond said first drainage channel means,

said second drainage channel means having at least two upwardly open channel members oriented generally longitudinally of said structural members,

each said second drainage channel having a cross sectional area less than the cross sectional area of said first drainage channel of the said structural member of which it is a part,

each said second drainage channel outer wall disposed about 1/8 to 7/8 inch transversely outwardly of a plane taken through the inner surface of the closer of said upstanding channel walls of said first drainage channels,

said second drainage channel means of said secondary structural members having a discharge outlet in overlying communicating relationship with respect to said second drainage channel means of said primary structural members, whereby water flowing in said overlying second drainage channel means will be discharged into said underlying second drainage channel means,

each said second drainage channel means defined by an inner generally vertical wall, an outer generally vertical wall and a connecting bottom wall,

said overlying second drainage channel having its discharge outlet disposed at a position spaced transversely inwardly of said underlying second drainage channel outer vertical wall, whereby relative thermal expansion and contraction may displace said overlying discharge outlet without destroying communication between said outlet and said underlying second drainage channel,

at least some of said primary structural members intersecting with said secondary structural members with said first drainage channel means of said primary structural members and said secondary structural members extending across said intersections, and

said intersections between said primary structural members and said secondary structural members being effected by a notch within said primary structural member receiving a portion of said secondary structural member including said secondary structural member first drainage channel but not including said secondary structural member second drainage means, whereby said secondary structural member will span three or more said primary structural members.

2. The building construction of claim 1 including

drip resisting means disposed on said overlying second drainage channels for resisting flow of water along the exterior of said second drainage channel in a direction away from said discharge outlet, and

said drip resisting means having at least a portion disposed in overlying relationship with respect to said underlying second drainage channel, whereby water flowing along the exterior surface of said second drainage channels will contact said drip resisting means and drop into said underlying second drainage channel.

3. The building construction of claim 2 including

said drip resisting means being a clip member disposed at a position spaced from said discharge outlet and secured to the exterior of said second channel member outer vertical wall and extending across said second channel bottom wall.

4. The building construction of claim 1 including

a pair of glazing beads secured to one said structural member,

a marginal portion of a first said panel in contact with one said glazing bead,

a marginal portion of another said panel in contact with the other said glazing bead,

an overlying glazing cap having a pair of glazing beads secured thereto with each said glazing bead contacting a marginal portion of one said panel, and

fastener means securing said glazing cap to said structural member with said marginal panel portions interposed, whereby said panels will be secured between said glazing cap and said structural member with said glazing beads providing seals to resist water infiltration.

5. The building construction of claim 4 including

base portions of said primary and secondary structural members being of generally tubular cross sectional configuration and having a base wall, a pair of parallel upwardly directed sidewalls and a top wall,

said first drainage channels defined by the upper surface of said top wall and a pair of upwardly directed channel walls, and

each of said second drainage channels defined by either a base portion sidewall or a said first drainage channel upwardly directed channel wall in cooperation with an outwardly directed bottom wall emerging therefrom and an outer vertical wall extending upwardly from said bottom wall.

6. The building construction of claim **5** including

said second drainage channels disposed on opposite sides of said structural members at about the same elevation.

7. The building construction of claim **4** including

said primary and secondary structural members each being of unitary construction,

base portions of said primary and secondary structural members having a base plate and an upwardly directed central web,

said first drainage channels defined by a channel base wall and a pair of upstanding channel walls,

each said second drainage channel defined by said upwardly directed central web, a portion of said base plate and an upwardly directed outer wall,

said upwardly directed central web having an upper extremity disposed below said first drainage channels, and

said second drainage channels disposed at a level below said first drainage channels.

8. The building construction of claim **7** including

each said first drainage channel being divided into two channels by an elongated transversely centrally disposed fastener receiving channel.

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