

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in domed rooflights

We, WILLIAM J. COX (SALES) LIMITED, a British Company, of Tring, Hertfordshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to domed rooflight structures which include a transparent or translucent light transmitting member or rooflight proper which as at present constructed is intended to be screwed or bolted to an upstanding timber, concrete or metal kerb on the roof. Such light transmitting members are composed of any suitable transparent or translucent material such as for example acrylic resin compositions, wire laminate reinforced plastic materials such as polyvinylchloride or glass reinforced polyester resins.

The fitting of such light transmitting members takes some little time and due to the use of screws or bolts which are accessible on the outside of the structure, such structures are not as at present constructed proof against pilfering or illegal entry.

An object of the present invention is to evolve a construction which will avoid the use of accessible screws or bolts and which can be quickly assembled and mounted in position on a roof or other supporting structure.

A further object of the invention is to evolve a construction in which the rooflight supporting structure can be easily built up to the required height with the use of standard components and with or without suitable ventilators.

The structure in accordance with the invention can either be applied directly to a roof in which case it will take the place of the usual timber or concrete kerb or may be attached to a kerb, the structure in either

case avoiding the use of accessible screws or bolts.

A rooflight structure in accordance with the present invention includes two or more superimposed units having an overriding or "snap-on" interlocking engagement, one unit being adapted to carry the light transmitting member or rooflight proper, the lower or lowermost member being adapted for mounting on a roof directly or on an upwardly projecting kerb.

The phrase "overriding or snap-on interlocking engagement" is intended to define a construction in which the interengaging parts can override one another easily under an applied force but when interengaged will effectively resist separation.

According to a further feature of the invention the upper or uppermost unit takes the form of a frame embracing the peripheral edge of the light transmitting member, thus protecting the light transmitting member from damage, particularly during transport and also due to the fact that the edge of the light transmitting member is enclosed complying with the fire regulations appertaining to such structures.

Although it is within the scope of the invention to construct the units of the structure from sheet metal bent to the required cross-sectional shape it is preferred to construct each unit from lengths of extruded metal for example aluminium mitred at their ends so that four lengths of extruded metal can be joined together at the corners to form each unit of rectangular shape in plan view. The lengths of extruded metal may be welded at the corners or joined by suitable connecting plates rivetted in position, and/or by jointing members of angle section entering recesses in the parts which are to be joined together at right angles.

To connect the superimposed members to

[Price 4s. 6d.]

SEE ERRATA SLIP ATTACHED

gether with a "snap-on" type of connection it is preferred to employ a form of clip which can conveniently be formed by an extruding operation and of outwardly splayed channel shape in cross-section, the base of the channel being shaped to straddle and make "snap-on" engagement with bifurcated parts of one unit, the longitudinal edges of the clip engaging inwardly directed shoulders on a channel shaped part of the other unit.

Referring to the accompanying drawings:

Figures 1, 2 and 3 are fragmentary sectional views of three alternative forms of rooflight structures in accordance with the invention.

The domed rooflight structure illustrated by Figures 1 and 2 is intended for mounting directly on the roof as distinct from being mounted in position upon an upstanding kerb or the like. The structure includes a light transmitting member or roof light proper 1 of domed shape, the edge of the member 1 being enclosed by a metal frame of rectangular shape in plan view and built up from four lengths of extruded metal, for example, aluminium and indicated by reference numeral 2, the frame members being connected together at the corners by corner brackets 3 secured in position by rivets 4, the frame members being mitred at their ends. Each frame member 2 includes a downwardly inclined channel section part 5 which embraces the edge of the member 1 and contains an extruded neoprene gasket 6 which makes sealing engagement with the upper and lower surfaces of the member. Member 2 also includes an inverted channel shaped part 7 containing a weather seal 8 preferably formed from neoprene or butyl foam, the lower edges of the part 7 being turned inwardly at 9 to form inwardly directed shoulders for a purpose hereinafter referred to. The part 7 is provided with an upstanding rib 10 which serves to trap any condensation on the inner surface of the member 1, any water which may collect as a result of condensation flowing out of the structure between the members 2 at the corners or through suitable drainage holes.

The rooflight proper 1 and its frame 2 form a unit, the frame protecting the edges of the rooflight proper against damage particularly during transport, the fact that the frame encloses the rooflight proper at its edges enabling the unit to conform to the fire regulations pertaining to such structures.

The rooflight proper and its associated frame are in the case of Figure 1 shown mounted in position upon an upstand constructed from four components 11 each extruded from aluminium or other suitable metal, the walls diverging in a downward direction and terminating in a substantially

horizontal roof engaging part 12 which is screwed as at 13 to the upper surface of the roof. Components 11 are mitred at their ends, the ends being welded or otherwise connected together. Each member 11 is provided with a downwardly projecting flange 14 forming a retainer for a wooden or other liner 15 lining the roof opening. Alternatively, the flange 14 may form a plaster line.

Each member 11 is formed on its inner surface with flanges 16 and 17 at its upper and lower ends for the "snap-on" engagement of a metal insulation retainer 18 of box-like construction, the insulation being indicated by reference numeral 19.

Each member 11 is provided on its outer surface with a flange 20 for making overriding engagement with an aluminium flashing 21 which overlaps the upper edges of layers 22 of felt or other applied roof surfacing which cover the part 12 and its associated securing screws 13, the felt layers or other applied surfacings being affixed to the roof in any suitable way.

Each member 11 is formed with a bifurcated upper edge 23 for entry into the inverted channel shaped part 7 of the frame 2, the bifurcated part being inherently resilient. The upper extremities of the bifurcated part 23 are of barb shape as at 24 to make "snap-on" engagement with a clip 25 of downwardly diverging channel shape, the base of the channel shape clip being shaped to override the barbs 24 and secure the clip in position the lower edges of the clip engaging the shoulders 9.

It will be appreciated that the clip 25 may be carried by the part 7 or preferably by the bifurcated part 23, the action of pressing the frame 2 and its associated light transmitting member downwardly causing either the clip to override the barbs 24 or if already in engagement with the barbs to override the shoulders 9, the clip automatically expanding by its own resiliency into the position shown to lock the two units together. The neoprene or butyl foam 8 provides a weather seal and a resilient cushion to position the units and prevent rattling.

The weather seal 8 instead of extending continuously around the member 7 may be replaced by shorter lengths of a more rigid material separated by a suitable gap to permit the entry of air for trickle ventilation. Each clip 25 may extend throughout the full length of member 7 or a number of clips of shorter length may be used. Instead of employing the clips 25 the bifurcated part 23 may be sprung into a suitably shaped recess in a rubber, plastics or other resilient liner for the inverted channel shaped part 7, the barb shaped parts 24 being preferably more pronounced. Instead of the bifurcated part 23 the upper edge may be of arrow, bulbous or other suitable cross-sectional form or of

fir-tree or modified fir-tree root formation and again sprung into a suitably shaped recess in a liner, the arrangement in all cases being a "snap-on" form of interlocking engagement, the liner insuring a good seal. The liner may if required be in shorter lengths spaced apart for trickle ventilation.

Figure 2 illustrates an alternative construction in which a ventilator unit constructed from four lengths 26 of extruded aluminium or other suitable metal joined together at their ends is interposed between the frame 2 carrying the rooflight proper and the upstand 11. Each of preferably two opposite members 26 is formed with vertically arranged slots for co-operating with a slotted sliding ventilator shutter 27 movable by a suitable shutter control 28, entry of rain being prevented by an extruded weather baffle 29, the upper edge 30 of which enters a groove in the base of bifurcated part 23, the baffle having a laterally projecting limb portion which is shaped into hook form as at 31 to interlock with a projection 32. A perforated insect or snow screen 33 connects the weather baffle 29 and the part 26, part 26 includes an inverted channel shaped portion 34 corresponding in section with part 7 which like part 7 contains a weather seal 8, and clip 25, and is adapted for the entry of the bifurcated part 23 of the upstand 11, the parts having a "snap-on" engagement. Part 34 is also provided with an upstanding flange 10 providing a condensation gutter, any moisture escaping between the parts 26 at the corners.

The upper edge of part 26 is bifurcated as in the case of the upstand 11 and consequently the frame 2 will have a "snap-on" interengagement with the ventilator unit.

In the case of Figure 3, the ventilator unit is shown attached to a timber or concrete kerb 35, through the medium of a kerb adaptor which is screwed as at 37 to the kerb, the screws being on the inside of the unit and consequently not being accessible from the exterior.

The kerb adaptor is built up from four extruded metal members 36 which are mitred at the corners and connected together by welding, brackets or the like, the adaptor carrying an outer flange 38 which overhangs the outer upper edge of the kerb 35, the adaptor being recessed on its under surface to receive a cord or mastic seal 39 which provides a good seal between the under surface of the adaptor and the upper surface of the kerb.

The upper edge of the adaptor is bifurcated at 23 as in the case of the upstand in Figure 1 and the ventilator unit in Figure 2 for making interlocking "snap-on" engagement with the ventilator unit.

It will be appreciated from the foregoing description that due to the standard inter-

engaging parts of the units the frame carrying the rooflight proper can be attached to an upstand as in Figure 1 or to a ventilator unit as in Figure 2; the ventilator unit being either mounted on an upstand or attached directly to a kerb adaptor as in Figure 3. As a further alternative the frame may be attached directly to the kerb adaptor and if desired a number of ventilator units may be assembled one on top of the other as required. In such a case the ventilation slots in one or more of the superimposed units may be omitted.

The interlocking parts are so shaped as to provide a lead to enable interlocking to take place with a minimum of pressure, the parts when interlocked being virtually impossible to separate, the structure being therefore much more secure against illegal entry or pilfering than the present constructions in which the rooflight proper is screwed or bolted to a timber, concrete or metal kerb, the screws or bolts being accessible from the exterior of the structure.

Furthermore the complete structure can be packed and transported in a completely knocked down condition so that in the case of export it takes up a minimum of shipping space and can be quickly and easily erected.

WHAT WE CLAIM IS:

1. A domed rooflight structure including a member carrying the light transmitting member or rooflight proper and a member adapted for mounting in position upon a roof or upstanding kerb, the two members when superimposed having an overriding or "snap-on" interlocking engagement.

2. A structure as claimed in claim 1, including one or more intermediate members likewise having an overriding or "snap-on" interlocking engagement with adjacent members.

3. A structure as claimed in claim 2, wherein the intermediate member or members comprises or comprise a ventilator unit or units.

4. A structure as claimed in any of the preceding claims, wherein the member associated with the light transmitting member comprises a rectangular frame of channel cross-section enclosing the peripheral edge of the light transmitting member and in sealing engagement therewith.

5. A structure as claimed in any of the preceding claims, wherein each superimposed member includes an inverted channel section part for the entry of a channel section or bifurcated part on the member immediately beneath, the bifurcated part carrying or being engageable with an inverted channel section resilient metal clip, the limbs of which diverge downwardly and are engageable with inwardly directed shoulders on the inverted channel section part of the superimposed member.

fir-tree or modified fir-tree root formation and again sprung into a suitably shaped recess in a liner, the arrangement in all cases being a "snap-on" form of interlocking engagement, the liner insuring a good seal. The liner may if required be in shorter lengths spaced apart for trickle ventilation.

Figure 2 illustrates an alternative construction in which a ventilator unit constructed from four lengths 26 of extruded aluminium or other suitable metal joined together at their ends is interposed between the frame 2 carrying the rooflight proper and the upstand 11. Each of preferably two opposite members 26 is formed with vertically arranged slots for co-operating with a slotted sliding ventilator shutter 27 movable by a suitable shutter control 28, entry of rain being prevented by an extruded weather baffle 29, the upper edge 30 of which enters a groove in the base of bifurcated part 23; the baffle having a laterally projecting limb portion which is shaped into hook form as at 31 to interlock with a projection 32. A perforated insect or snow screen 33 connects the weather baffle 29 and the part 26, part 26 includes an inverted channel shaped portion 34 corresponding in section with part 7 which like part 7 contains a weather seal 8, and clip 25, and is adapted for the entry of the bifurcated part 23 of the upstand 11, the parts having a "snap-on" engagement. Part 34 is also provided with an upstanding flange 10 providing a condensation gutter, any moisture escaping between the parts 26 at the corners.

The upper edge of part 26 is bifurcated as in the case of the upstand 11 and consequently the frame 2 will have a "snap-on" interengagement with the ventilator unit.

In the case of Figure 3, the ventilator unit is shown attached to a timber or concrete kerb 35, through the medium of a kerb adaptor which is screwed as at 37 to the kerb, the screws being on the inside of the unit and consequently not being accessible from the exterior.

The kerb adaptor is built up from four extruded metal members 36 which are mitred at the corners and connected together by welding, brackets or the like, the adaptor carrying an outer flange 38 which overhangs the outer upper edge of the kerb 35, the adaptor being recessed on its under surface to receive a cord or mastic seal 39 which provides a good seal between the under surface of the adaptor and the upper surface of the kerb.

The upper edge of the adaptor is bifurcated at 23 as in the case of the upstand in Figure 1 and the ventilator unit in Figure 2 for making interlocking "snap-on" engagement with the ventilator unit.

It will be appreciated from the foregoing description that due to the standard inter-

engaging parts of the units the frame carrying the rooflight proper can be attached to an upstand as in Figure 1 or to a ventilator unit as in Figure 2, the ventilator unit being either mounted on an upstand or attached directly to a kerb adaptor as in Figure 3. As a further alternative the frame may be attached directly to the kerb adaptor and if desired a number of ventilator units may be assembled one on top of the other as required. In such a case the ventilation slots in one or more of the superimposed units may be omitted.

The interlocking parts are so shaped as to provide a lead to enable interlocking to take place with a minimum of pressure, the parts when interlocked being virtually impossible to separate, the structure being therefore much more secure against illegal entry or pilfering than the present constructions in which the rooflight proper is screwed or bolted to a timber, concrete or metal kerb, the screws or bolts being accessible from the exterior of the structure.

Furthermore the complete structure can be packed and transported in a completely knocked down condition so that in the case of export it takes up a minimum of shipping space and can be quickly and easily erected.

WHAT WE CLAIM IS:

1. A domed rooflight structure including a member carrying the light transmitting member or rooflight proper and a member adapted for mounting in position upon a roof or upstanding kerb, the two members when superimposed having an overriding or "snap-on" interlocking engagement.

2. A structure as claimed in claim 1, including one or more intermediate members likewise having an overriding or "snap-on" interlocking engagement with adjacent members.

3. A structure as claimed in claim 2, wherein the intermediate member or members comprises or comprise a ventilator unit or units.

4. A structure as claimed in any of the preceding claims, wherein the member associated with the light transmitting member comprises a rectangular frame of channel cross-section enclosing the peripheral edge of the light transmitting member and in sealing engagement therewith.

5. A structure as claimed in any of the preceding claims, wherein each superimposed member includes an inverted channel section part for the entry of a channel section or bifurcated part on the member immediately beneath, the bifurcated part carrying or being engageable with an inverted channel section resilient metal clip, the limbs of which diverge downwardly and are engageable with inwardly directed shoulders on the inverted channel section part of the superimposed member.



6. A structure as claimed in claim 5, wherein the bifurcated part has outwardly directed barb shaped teeth with which correspondingly shaped parts of the clip make
5 overriding interlocking engagement.

7. A structure as claimed in claim 5 or 6, wherein the base of the inverted channel shaped part carries a resilient weather seal of neoprene foam or other suitable resilient
10 material engageable by the base of the clip and compressed as a result of bringing the members into interlocking engagement.

8. A structure as claimed in any of the preceding claims, wherein each roof engaging member has downwardly and outwardly
15 inclined walls terminating at its lower end in a horizontal flange portion for attachment to the roof.

9. A structure as claimed in claim 8,
20 carrying on its outer face a metal felt flashing for overriding the upper edge of one or more layers of roofing felt or the like.

10. A structure as claimed in claim 8 or 9, carrying on its inner surface a metal box-
25 like insulation retainer packed with a suitable insulating material.

11. A structure as claimed in any of claims 1 to 7, including a ventilating member for interlocking engagement with a frame
30 carrying the light transmitting member and

a roof or kerb engaging member, the ventilating member being formed with slots or openings controlled by an associated ventilation shutter, the member carrying a downwardly and outwardly inclined weather baffle connected with the member at its lower end by a perforated insect or snow screen.

12. A structure as claimed in any of the preceding claims, wherein the superimposed
40 parts are constructed from straight lengths of extruded metal for example aluminium mitred and connected together at their ends to form a rectangular unit.

13. A structure as claimed in any of the preceding claims, wherein the roof or kerb engaging member is bored with holes for the reception of securing screws for its attachment to the roof or kerb, the screws
50 when the structure is erected being inaccessible from the exterior of the structure.

14. A domed rooflight structure substantially as described with reference to Figures 1, 2 or 3 of the accompanying drawings.

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