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A STRUCTURAL ROOF MEMBER

This invention relates to a structural roof member, and particularly a roof member used in roof framing in the building construction of a steel truss structure.

5 Usually, the steel section utilized in structural roof members in the construction of a steel truss structure is of for example I-shape, Z-shape, U-shape, or C-shape and the surfaces of these members are usually evenly smooth. Therefore, when the roofers come to
10 lay roofing material such as asbestos-tiles or corrugated metal sheets on the upper side of these roof members, which may be transversely spaced apart by about 80 cm from each other on rafters of a triangular steel truss 10 as illustrated in Figure 1, they may acciden-
15 tally slip off the roof members and fall to the ground resulting in injury or even death particularly when the members are wet with rain or dew. Further, in the process of roofing, roofing materials 30 such as asbestos-tiles, wooden boards, PVC corrugated sheets, .
20 are placed temporarily on the roof members 20, and since the loaded side of said roof members 20 is smooth and inclined towards one side, the roofing materials 30 may easily slip and fall to the ground from the roof members 20. As a result, the materials may be damaged
25 or may cause injuries to workmen on the ground.

The present invention seeks to provide means of overcoming the aforesaid disadvantages.

5 The invention provides a structural roof member for a steel truss structure, the roof member having therein at least one groove in an intended upper surface of the member, the groove extending over or substantially over the entire length of the member, and an anti-slip strip of elastomeric or plastics material in the groove.

10 Preferred and/or optional features of the invention are set forth in claims 2-9.

The invention will now be more particularly described, by way of example, with reference to the accompanying drawings, wherein:

15 Figure 1 is a schematic diagram showing roof engineering work of a steel truss structure constructed with conventional roof members of shaped steel;

Figure 2 is a perspective view of a preferred embodiment of a roof member according to the present invention;

20 Figures 3A and B are sectional views of the main portion of the two examples of the anti-slip strip fixed in the roof member of Figure 2;

Figure 4 is an end view of a second embodiment of a roof member according to the present invention;

25 Figure 5 is an end view of a third embodiment of a roof member according to the present invention; and

Figures 6A to D are end views depicting various other embodiments of roof members according to the present

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invention.

Referring to Figure 2 there is shown therein a C-shaped steel member or purlin 20 having a groove 22 in a tile-roofing surface 21 thereof. The groove 22 extends over the entire length of the member 20, and an anti-slip strip 25 is fixed in the groove 22 by means of appropriate fastening means such as rivets, screws or adhesive. The strip 25 is formed by extrusion moulding of elastomeric material or flexible (preferably resilient) plastics material and has a plurality of longitudinally extending ridges 23 constituting an anti-slip frictional surface 24 which is slightly above said tile-roofing surface 21. When the anti-slip strip 25 is fixed on the steel member 20 by means of a plurality of rivets or screws 26, the rivet or screw heads should, preferably, lie below the surface 24. This can be achieved according to the illustrations shown in Figures 3A or B, by having spaced rivet or screw holes 27 disposed in a recess between two ridges 23 of a central portion of the strip 25, or by cutting away portions of one or more of the ridges 23 in the central portion of the strip, whereby the screw or rivet head seats 27' are aligned with holes 27, such that when said strip 25 is fixed on the steel member 20 by screws or rivets 26 passing through the holes 27, the screw or rivet heads are well beneath the surface 24 of the strip 25.

In the second embodiment according to the present

invention as shown in Figure 4, the groove 22 for receiving the anti-slip strip 25 is of dove tail shape in section i.e. the bottom of the groove is broader than the mouth of the groove and the anti-slip strip 25 is shaped correspondingly. In this way, the anti-slip strip 25 will remain in the groove 22 even if the screws or rivets become loose or the adhesive fails.

Figure 5 shows a third embodiment according to the present invention. In order to lower the cost and to use less material for the anti-slip strip 25, when a steel member 20 of greater width is used, the member 20 has therein two grooves 22 of lesser width and an anti-slip strip 25 is fastened in each groove 22.

Figures 6A to D further show that the present invention can be applied to various differently shaped steel members, for example members of U-shape, Z-shape, etc. according to requirements.

Further, grooves 22 with anti-slip strips 25 therein may be provided in both upper and lower surfaces of the roof member.

Instead of ridges 23, the strip may be shaped in any other appropriate manner to provide an uneven frictional surface.

As described above, a roof member formed from shaped steel has in the tile-roofing surface thereof at least one groove with an anti-slip strip fixed in the

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groove. Therefore, these roof members have many advantages such as preventing workmen from slipping and falling off to the ground during roofing work, or preventing roofing materials from falling to the ground causing damage thereby or injuries to other people. Moreover, the grooves in the roof members serve to strengthen the roof members.

CLAIMS:

1. A structural roof member for a steel truss structure, the roof member having therein at least one groove in an intended upper surface of the member, the groove extending over or substantially over the entire length of the member, and an anti-slip strip of elastomeric or plastics material in the groove.
2. The structural member of claim 1, wherein the strip projects outwardly of the groove in an upwards direction and provides an uneven anti-slip frictional surface above the surface of the member.
3. The structural member of claim 1 or claim 2, wherein the upper surface of the strip has a plurality of spaced parallel longitudinally extending ridges.
4. The structural member of any one of claims 1-3, wherein the strip is of elastomeric material.
5. The structural member of any one of claims 1-4, wherein the strip is secured in the groove by fastening means.
6. The structural member of any one of claims 1-4, wherein the strip is secured in the groove by adhesive.
7. The structural member of any one of the preceding claims, wherein the groove is of dovetail shape and the strip is of corresponding shape.



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8. The structural member of any one of claims 1 - 4,
wherein the member has at least one groove in each of
an intended upper and an intended lower surface thereof,
the grooves extending over or substantially over the
5 entire length of the member, and an anti-slip strip in
each groove.

9. A structural roof member substantially as hereinin-
before described with reference to, and as shown in,
any one of Figures 2 - 6 of the accompanying drawings.

10 10. A steel truss structure including a plurality
of structural roof members as claimed in any one of
the preceding claims.

