A building element for the construction of geodesic dome roof structures for connecting the various triangular segments together at the apexes of the various segments so that the roof structure may be progressively and safely assembled at the job site.

BACKGROUND OF THE INVENTION

The field of this invention lies in the construction of roofs and domes for buildings, and is particularly directed to the construction of geodesic domes and the connecting elements of such domes.

Heretofore it has been difficult to progressively, quickly and safely construct a geodesic dome roof structure without the use of initial special scaffolding or truss structures requiring considerable increased costs and labor to put up the structure.

Further, the prior structures required precise machining and were not readily adaptable to variations in the dome roof parts.

Former structures were also relatively complex and were not adaptable for the use of commonly available building materials and fastenings.

SUMMARY OF THE INVENTION

One of the objects of this invention is to provide a simple and effective connecting element for the legs of the triangular sections of a geodesic dome structure.

Another object is to provide such a connecting element which can be utilized with existing building structural members such as standard wood or metal joists.

A further object is to provide a construction element for geodesic dome roof construction which has few parts and few parts that need to be highly dimensioned so that the dome structure can be easily assembled and without highly skilled techniques being required.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a general perspective view of a geodesic dome roof incorporating the interconnecting roof elements of this invention.

FIG. 2 is a fragmentary enlarged plan view of an interconnecting roof element indicated by the line 2—2 of FIG. 1.

FIG. 3 is a fragmentary sectional view on the line 3—3 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As an example of one embodiment of this invention, there is shown a geodesic dome structure comprising a series of legs or strut members 10 which are connected together at the junction points indicated generally at 11 at the apexes of the triangular panel areas 12. The leg members may take the form of standard conventional 2 x 6 or the like joist members 17 which are utilized in conjunction with the novel junction point connecting element which comprises a cylindrical sleeve element 13 having a top end surface 14 and a bottom end surface 15, the cylindrical axis 16 of which defines the apex 11 of the triangular panel members 12.

Each joint member 17 is connected to the cylindrical sleeve element 13 by upper and lower clamp plates 18 and 19. The upper clamp plate 18 has a top web 20 with downwardly depending flanges 21 and 22, which flanges have bevelled front edges 23 arranged to engage the outer periphery 24 of the cylindrical sleeve element 13. The top web has a down turned bent over front end piece 25 which hooks over the top end surface 14 and engages the inside bore 26 of the cylindrical sleeve element. The web 20 and turned down front end piece 25 form an acute angle 27 with each other depending upon the size of the dome and the number of triangular panels 12 to be used.

Similarly, the lower clamp plate 19 has a bottom web 28 with upwardly extending flanges 29 and 30, which flanges have bevelled front edges 31 arranged to engage the outer periphery 24 of the cylindrical sleeve element 13. The bottom web has an up turned bent over front end piece 32 which hooks under the bottom end surface 15 and engages the inside bore 26 of the cylindrical sleeve element. The web 28 and turned up front end piece 32 form an obtuse angle 33 with each other depending upon the characteristics and dimensions of the dome being constructed.

Nails or screws 34 may be driven through suitable perforations in the sides of the flanges 21, 22, 29 and 30 while the end 35a of the joist member 17 abuts against the side of the main clamp bolt 35 having a clamping nut 36 and is passed through the webs 20 and 28 and the joist members 17 to securely position and lock the clamp plates 18 and 19 in proper position when gripped to the cylindrical sleeve elements 13.

1 claim:

1. A geodesic dome triangular panel area roof element for interconnecting joints comprising:

(A) a junction point element comprising a cylindrical sleeve having, an outer periphery, an inside bore, a top end surface, a bottom end surface, and an axis defining the apex of the triangular panel area,

(B) a joist element defining a side of the triangular panel area,

(C) an upper clamp plate having a top web, downwardly depending flanges on the top web engaging the sides of the joist, bevelled front edges on the depending flanges arranged to engage the outer periphery of the junction point element, and a down turned bent over front end piece on the web which hooks over the top end surface and engages the inside bore of the junction point element,

(D) a lower clamp plate having a bottom web with upwardly extending flanges having beveled front edges arranged to engage the outer periphery of the junction point element, and an upturned bent over front piece on the bottom web which hooks under the bottom end surface and engages the inside bore of the junction point element,

(E) means for positioning and securing the clamp plates to the joist including fastening nails and the like extending laterally through the flanges of the clamp plates into the sides of the joist, and
3 (F) further means including a clamp bolt extending through perforations in the webs of the clamp plates to move the bent over front end pieces of the webs toward each other to lock the joist element rigidly to the junction point element.

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