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MODULAR BUILDING

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Fig. 1.

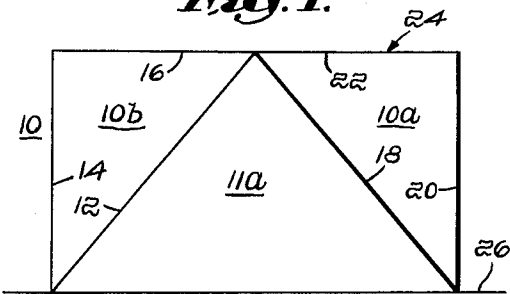


Fig. 2.

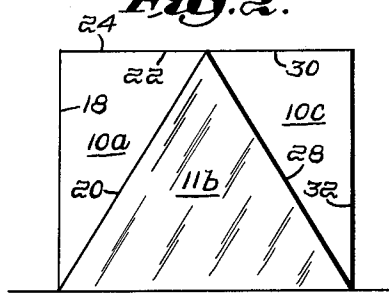


Fig. 3.

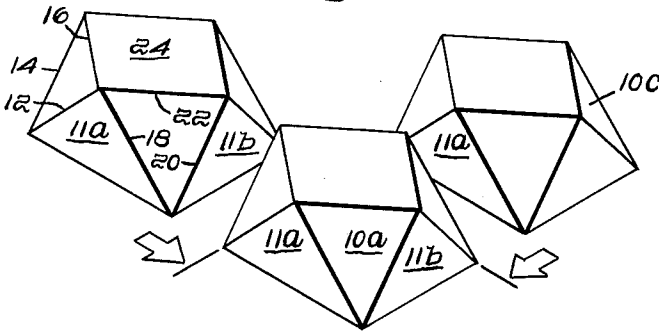
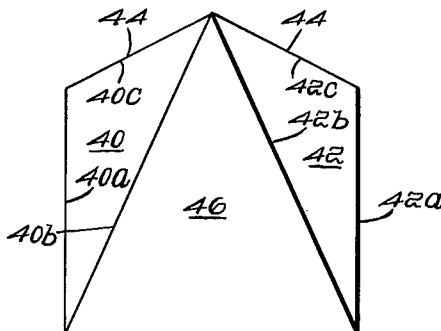


Fig. 4.



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MODULAR BUILDING

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6 Claims. (Cl. 52-79)

This invention is concerned with buildings, and more particularly with modular buildings of a type permitting easy joining of two or more such modules into a unitary structure.

Considerable economies in building construction may be obtained by the use of modular components. This type of construction facilitates factory or other preassembly of major portions of the structure, final assembly occurring on location. Thus, complete walls have been factory assembled and joined to other components on the building site. Prior proposals of this type generally have been characterized by the fact that it was difficult, if not impossible or at least impractical, to readily join together two or more such building units into a larger unitary structure.

This invention has as a primary object the provision of a novel modular building of a type making possible easy joining together of two or more of such modular buildings into a single building.

Another object of this invention is to provide novel modular buildings which may be factory manufactured, at least in part, of a wide variety of building materials, including plastics, aluminum, steel, wood, etc. Other objects will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises novel buildings possessing the features, properties and the relation of components which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing wherein:

FIGURE 1 is a front elevation of a modular building constructed in accordance with this invention;

FIG. 2 is a side elevation of the modular building shown in FIGURE 1;

FIG. 3 is a perspective view of a plurality of the modular buildings shown in FIGURES 1 and 2, and showing how said modular buildings may be joined together; and

FIG. 4 is a side elevation of a modular building constructed in accordance with another embodiment of this invention.

The modular buildings of this invention are multi-sided, each of said sides being triangular, the apex of each such triangular side which touches the ground creating upwardly converging rigid flat triangular panels the edges of which lie in a common plane vertical to the ground. In general, these novel buildings have at least three flat, triangular panels or walls. These triangular panels are load-bearing and support the roof. Each such triangular panel is characterized by the following combination of features: (1) only one corner of the triangle panel touches the ground, (2) two of the side-edges of the triangle lie in a common plane perpendicular to the ground or base line, (3) the corner or apex formed by said side-edges in a common plane vertical to the ground touches the ground, and (4) each of the remaining corners or apexes of said triangle is joined to a corner of the next adjacent triangular side. It is an important feature of this invention that the roof does not extend beyond the sides of the building; this makes it possible to join together two or more such modular units, without having to modify the

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roofs or other parts of the basic modular structural unit, employing a simple butting together procedure, as discussed in more detail hereinafter.

The construction of the novel modular buildings of this invention will be readily understood by reference to the accompanying drawing. FIGURES 1 through 4 show modular buildings which are rectangular, having four triangular walls or panels supporting the roof. Turning to FIGURE 1, there is shown a side elevation of a building 10 showing triangular or panels 10a and 10b supporting a flat roof 24. Triangular panel 10a is formed of legs 18, 20 and 22, each of legs 18 and 20 being inclined in a plane which is perpendicular to the base or ground line 26. Triangular wall 10b is similarly formed of legs 12, 14 and 16, legs 12 and 14 being inclined in planes perpendicular to the ground line 26. As shown, legs 14 and 20 lie in parallel planes and legs 12 and 18 lie in a common plane. Legs 16 and 22 lie in a common, horizontal plane, and carry the roof 24.

As noted above, the buildings of this invention comprise a plurality of triangular sides or walls. One corner of each triangular panel touches the ground, which each of the other two corners are connected to a corner of another triangular side. As shown, for example, in FIGURE 1, a vertical triangular area 11a is defined by leg 12 of triangular side 10b, leg 18 of triangular side 10a, and the base or ground line 26, thus the side edges of said adjoining converging triangular panels 10a and 10b form the sidewalls for said building and the vertical triangular area 11a. This "side" or "wall" 11a may be made of the same or different structural materials as the roof-supporting triangular sides 10a, 10b, etc., or it may be covered by glass or other transparent or translucent material, or it may be left open. Where two or more building modules are to be combined, at least one side 11a may be left open in each module, and the modules butted together by positioning these equally dimensioned sides 11a opposite each other and appropriately securing the modules together. If desired, the wall 11a may contain doors or other means of ingress and egress. Entrance to the modular buildings of this invention is gained through an open side 11a, 11b, etc., or through a door or other conventional means of ingress and egress positioned in one or more of said vertical side walls.

It will be noted that only the side walls 11a, 11b, etc., are vertical. The roof-supporting triangular walls 10a, 10b, etc., are inwardly inclined.

FIGURE 2 shows a side elevation of the embodiment shown in FIGURE 1, wherein a triangular vertical side 11b is formed by leg 20 of triangular side 10a, leg 28 of triangular side 10c, and the base or ground line 26.

FIGURE 3 shows how two, three, or more modular buildings of the type shown in FIGURES 1 and 2 may be grouped to provide a single, larger building. As shown, a vertical side 11b is butted against a matching vertical side of another module, which may be of the same or different dimensions so long as there are vertical walls of common dimensions which may be joined together. As will be readily understood by those skilled in the art, any desired means suitable for the particular construction materials may be employed to connect the modules.

The embodiments shown in FIGURES 1, 2 and 3 have had flat roofs. As is shown in FIGURE 4, the roof may be pitched on any desired axis, although the edges of the roof still will not extend beyond the vertical sides. As is shown in FIGURE 4, triangular sides 40 and 42 are composed, respectively, of legs 40a, 40b and 40c, and legs 42a, 42b and 42c. The roof 44 is supported by legs 40c and 42c. Vertical side 46 is formed by legs 40b and 42b and base line 26. As will be apparent from

FIGURE 4, the pitch of the roof is controlled and determined by the relative heights of legs 40a and 40b, etc. Although the roof has been described as being supported or carried by legs of the triangular sides, it will be understood that this is intended to include the use of construction techniques wherein the triangular side legs, e.g., legs 16 and 22, are unitary with the roof.

Where the roof, e.g., roof 24 of FIGURE 1, is flat, two or more modular units may be superposed one above the other to form a multi-storied building. The roof of the topmost module may be flat or pitched.

Although this invention has been illustrated by modular buildings which are rectangular, it will be understood that the invention is not so limited. Thus, the floor plan of the building may take any configuration, e.g., an equilateral triangle, an isosceles triangle, a parallelogram, a square, a rectangle, a hexagon, a pentagon, etc.

Where desired, windows or other means of ventilation and/or illumination, may be positioned in the triangular side walls 10a, etc.

The novel modular buildings of this invention provide not only a unique and useful construction technique, but also provide buildings which are distinctive and appealing in design and whose design may be varied considerably while employing the same modular components, either triangular side walls or complete modular building units. This is particularly useful where it is desired to impart a common identifying appearance to buildings which must vary in size, e.g., supermarkets, restaurants, gasoline service stations, etc., according to their geographical location and local business needs and conditions. In addition, the modular buildings of this invention may be so constructed as to be relatively easily taken apart and moved to a different location, e.g., as may occur in providing short term school buildings under changing school population conditions.

Since certain changes may be made in the above modular buildings without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A modular building comprising a roof, at least three upwardly converging rigid flat roof-supporting triangular panels, a panel supporting lower apex of each of said panels resting on a base, each of the remaining two upper

apexes of each triangular panel being joined and common with one of the two remaining upper apexes of the adjoining converging triangular panel on each side of the respective panel, an upper edge extending between said upper apexes of each triangular panel and defining with the other of said upper edges a continuous closed peripheral roof support and the outer terminal of said roof, the lower apexes of each pair of adjoining triangular panels and their joined and common upper apexes being disposed in a common vertical plane, the side edges extending from said respective lower apexes to the common upper apexes defining therebetween and with the portion of the base extending between the respective lower apexes a vertical triangular area, and at least one of said areas being covered by a flat panel interconnecting the side edges of said adjoining converging triangular panels whereby sidewalls are formed for said building.

2. A building as defined in claim 1 having four triangular roof-supporting triangular panels.

3. A building as defined in claim 1, wherein said roof is a flat roof.

4. A building as defined in claim 1, wherein said roof is a pitched roof.

5. A building as defined in claim 1, wherein at least one of said vertical formed sidewalls is composed of glass.

6. A building comprising at least two modules of the building as defined in claim 1, said modules being joined at abutting common vertical triangular areas.

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