

[54] **INDUSTRIAL BUILDING CONSTRUCTION**

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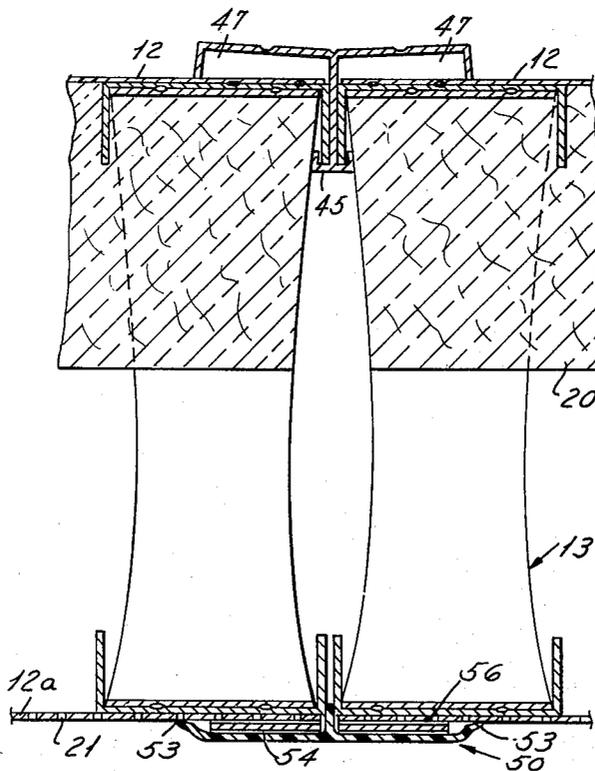
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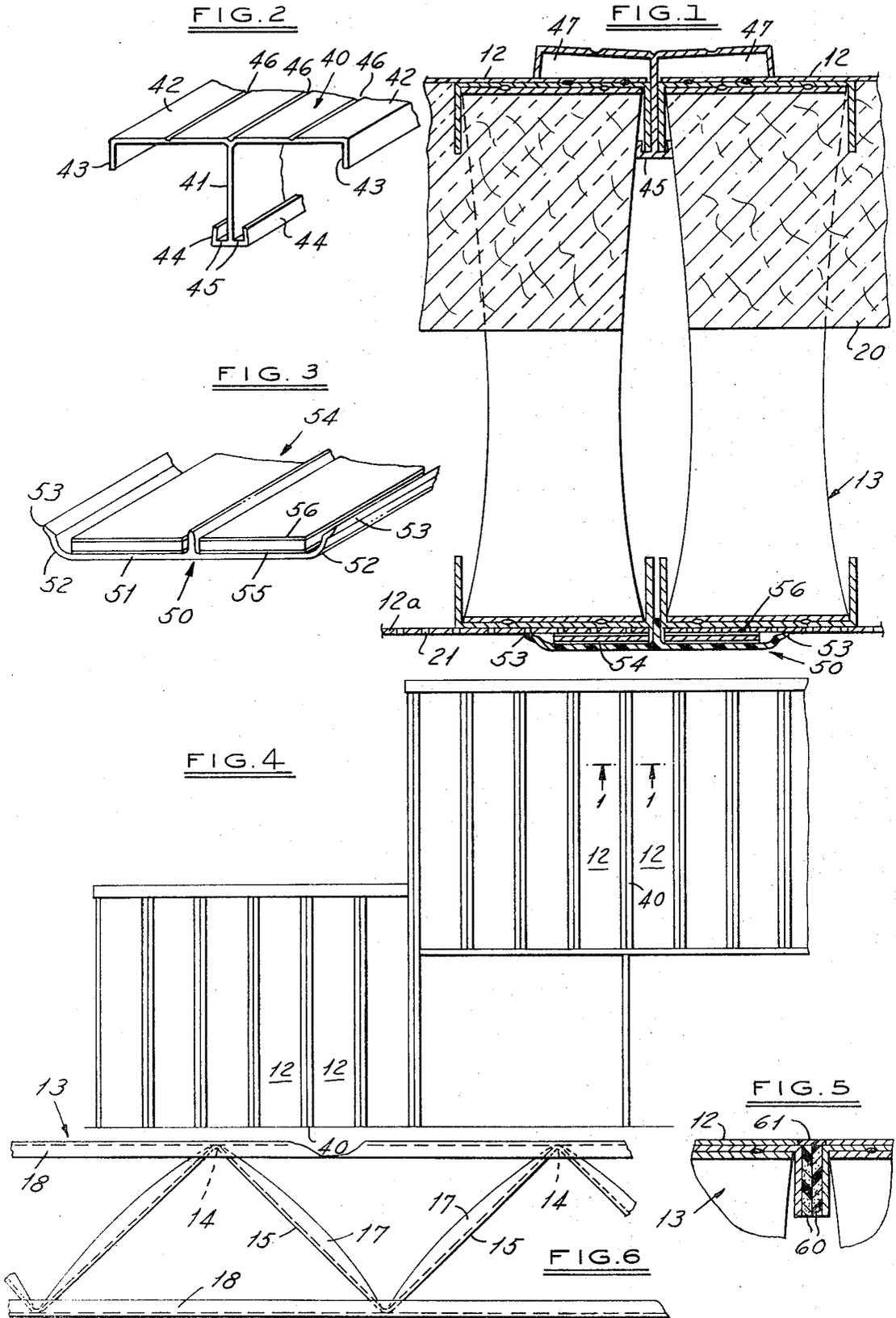
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[57] **ABSTRACT**

An industrial building construction wherein both horizontal and vertical walls are provided by prefabricated panels, each of which comprises spaced sheets of material to which trusses are fastened. The horizontal wall members define the roof of the building and the vertical wall members define the exterior walls. Insulating material is provided between the sheets and one sheet is provided with perforations. Novel means are provided for sealing the joints between the ends of the panels. Novel sealing construction is provided between the vertical edges of adjacent vertical wall members.

5 Claims, 6 Drawing Figures





INDUSTRIAL BUILDING CONSTRUCTION

This invention relates to industrial building construction.

BACKGROUND OF THE INVENTION

In building industrial buildings, a major factor is cost of construction. Accordingly, various prefabricated constructions utilizing panels of different designs have been heretofore proposed. In most of the designs of which the inventor is aware, an additional roofing construction is required in the way of roofing material, coating material and the like.

Among the objects of the invention are to provide a novel industrial building construction utilizing prefabricated panels; wherein both acoustical and thermal installation is provided; and wherein costs of components as well as construction are minimized.

SUMMARY OF THE INVENTION

In accordance with the invention, the industrial building construction comprises walls provided by prefabricated panels, each of which comprises spaced sheets of material to which trusses are fastened. Insulating material is provided between the sheets and one sheet is provided with perforations. Novel means are provided for sealing the joints between the ends of the panels. Novel sealing construction is provided between the vertical edges of adjacent vertical wall members.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary sectional view on an enlarged scale taken along the line 1—1 in FIG. 4.

FIG. 2 is a fragmentary perspective view of a sealing member utilized in the joint shown in FIG. 6.

FIG. 3 is a fragmentary perspective view of another sealing member utilized in the construction shown in FIG. 6.

FIG. 4 is a fragmentary elevational view of a building embodying the construction shown in FIG. 1.

FIG. 5 is a fragmentary vertical sectional view similar to FIG. 1 of a modified form of construction.

FIG. 6 is a fragmentary side elevational view of a truss utilized in the invention.

DESCRIPTION

Referring to FIG. 1, the building 10 embodying the invention is made of a plurality of prefabricated panels 11, each of which is of substantially identical construction. As shown in FIGS. 1, 2 and 5, each prefabricated panel 11 comprises spaced sheets 12 of relatively thin material which bends under its own weight, such as sheet metal, and a plurality of parallel trusses 13. One of said sheets is perforated as at 12a.

Each truss 13 comprises a strip of material which has a greater width than thickness, such as sheet metal, and includes alternating apices 14 connected by diagonal legs 15. Each leg member 15 has a substantially straight line end portion 16 and a non-flat intermediate portion 17 herein shown as U-shaped in cross section which gradually merges with the straight line end portions 16. By this construction, the apices form relatively sharp V-shaped configurations.

Each truss 13 further comprises channel members 18 engaged by the apices 14 of the longitudinally extending members 13. The apices 14 are preferably welded to the channels 18 and one of the channel members is

bonded to sheets 12 as by welding, riveting or the use of a suitable adhesive such as epoxy resin or pressure sensitive tape.

A sound deadening and/or insulating material 20 is provided between the sheets 12 and one of the sheets 12a is provided with perforations 21.

Referring to FIG. 1, the joint between adjacent vertical wall members 11 is shown and on the exterior surface comprises a sealing member 40 that is generally T-shaped in cross section and preferably made of aluminum. The sealing member 40 includes a central web or leg 41 and lateral arms 42. Flanges 43 extend inwardly from the ends of the arms 42 parallel to the web 41. Flanges 44 extend laterally and upwardly from the lower end of the web 41 to define a groove 45 on each side of the web. The sealing member 40 is preferably made of aluminum and formed with grooves 46 on the exterior surface which serve the dual function of an aesthetic appearance and permit limited bending of the arms 42 relative to the web 41 as presently described.

In use, adjacent vertical wall members or panels are brought into position and the sealing member 40 is engaged with the flanges 24 of the wall members and slid vertically, the free edges of the flanges 43 on the sealing member engaging the exterior surface of the panel 11. The free edges of the flanges or side walls 24 engage the grooves 45 and as the sealing member 40 is pushed downwardly relative to the adjacent panel or wall members, the arms 42 are flexed with relation to the web 41 causing a sealing engagement with the outer surface of the sheet 12. The sealing member 40 functions to prevent water, wind and the like from being directed into the panel members. Any moisture flowing or blown into the space between the sealing member 40 and the panels is either caused to flow downwardly through the spaces 47 or in any event prevent it from moving axially inwardly by the change of direction.

As shown in FIG. 3, sealing and decorative appearance for the inner surfaces of the adjacent wall members is achieved, if desired, by utilization of a strip 50 which is generally U-shaped and comprises a base 51, legs 52 and thin feather-like flexible edges 53 diverging outwardly from the legs 52. An insert 54 comprising a strip of resilient material, such as foamed plastic, is adhered to the base 51 of the strip 50 by a layer 55 of pressure sensitive adhesive on one face of insert 54. A second layer 56 of pressure sensitive adhesive is provided on the opposite face of the insert 54 for adhering to the faces of the panels.

When the novel assembly is applied, as shown in FIG. 1, the feather edges 17 flex to provide a seal against the faces 12. Any misalignment in the panels is taken up by compression of the insert 54. This misalignment may occur either at assembly or during use of the building due to temperature, settling or other changes.

The strip 50 is preferably made of semi-rigid material such as vinyl plastic but also may be made of rubber. The foamed insert 54 is preferably made of a polyurethane material and is provided with temporary facing layers of paper or the like over the layers 55, 56 of pressure sensitive adhesive.

In order to facilitate assembly, the insert 54 is preferably applied to the strip 50 by removing the protective layer and adhering the insert 54 to the base 51 of the strip 50. This produces a strip assembly which can then be rolled up and transported to the job site. When it is

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desired to use the strip assembly, a desired length is unrolled and cut from the roll. The second paper layer 56 is then stripped exposing the pressure sensitive layer so that the strip assembly can be applied to make the panel joint.

A modified joint between adjacent panel members is shown in FIG. 5 and comprises resilient strips 60 of preferably closed cell foam plastic material. Such strips have pressure sensitive adhesive on both surfaces thereof such that one surface is adhered to the flanges 18 of the trusses and the other surface is adhered to the other surface of an adjacent strip 60. In practice, when each panel 12 is manufactured, strips 60 may be applied to flanges 18 on the exposed trusses at the edges of the panel. The other surface of each strip 60 may be protected with a paper strip until the panel 12 is brought to the job site. The paper strips can then be removed and the strips 60 of adjacent panels 12 abutted to adhere them to one another and form a joint. On the strips 60 which face exteriorly, a silicone protective strip 61 or caulking may be flowed in place. Alternatively, the protective strip 60 may be flowed in place.

What is claimed is:

1. The combination comprising a plurality of substantially identical panels in side-by-side array, each said panel comprising spaced flat sheets and a plurality of spaced trusses bonded to said sheets, each said truss comprising spaced channels and an undulating member comprising alternating apices connected by leg members with the apices bonded to the channels,

each said channel having a base portion and flange portions, each said panel having a truss along a longitudinal edge thereof such that the flanges of adjacent channels of the trusses of adjacent panels extend parallel to one another in side-by-side relation, and means defining a seal joint between adjacent panels comprising a member which has a generally T-shaped section including a web extending between the flanges of adjacent panels and engaging the free edges of said flanges of said adjacent channels and arms extending laterally outwardly and engaging the outer surfaces of the sheets of said panels.

2. The combination set forth in claim 1 wherein said web of said sealing member has means thereon forming outwardly facing grooves for receiving the free edges of the flanges of said adjacent truss members, such that said sealing member can be assembled onto adjacent wall members by engaging the side walls of the adjacent truss members with the grooves and the flanges on the arms of the sealing member with the outer sheet and sliding the sealing member relative to the adjacent wall members.

3. The combination set forth in claim 2 wherein said arms are capable of limited flexing movement relative to said webs of said sealing member.

4. The combination set forth in claim 1 wherein said sealing member is made of aluminum.

5. The combination set forth in claim 1 including an insulating material in each said wall member.

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