Transportable Modular Accommodation Unit and Assembled Transportable Modular Accommodation Unit

A transportable modular comprises a roof structure, an exterior wall structure and a floor structure which are mutually connected into a box shape. The exterior wall structure comprises a metal plate (2), an interior wall panel (14) and an exterior wall heat insulation layer (29) provided therebetween, studs (20) and light steel keels (13) are disposed in the exterior wall heat insulation layer (29). The roof structure comprises a roof (6), a top beam (7) which supports the roof (6), a ceiling and a roof heat insulation layer (9) provided between the roof (6) and the ceiling, a space between the roof (6) and the roof heat insulation layer (9) forms an air thermal barrier. The floor structure comprises a bottom frame composed of bottom crossbeams (24) and bottom longitudinal beams (25), autoclaved lightweight aerated concrete slabs (23) or fiber reinforced cement boards (30), with floor slabs (21) being mounted thereon, are provided on the bottom frame. An assembled modular accommodation unit comprising at least two modular accommodation units is also provided. The modular accommodation unit has a scientific and reasonable structure.
UNIT AND ASSEMBLED TRANSPORTABLE MODULAR
ACCOMMODATION UNIT

Technical Field
The present invention relates to a container transportable house, particularly to a transportable modular accommodation unit and an assembled transportable modular accommodation unit.

Background of the Invention
The existing container transportable houses typically adopt a shell structure of a general dry cargo container. The interior is provided with metallic heat insulation sandwich panels. This kind of transportable house features a simple structure and low cost, but its appearance is rigid and doesn't possess the aesthetic effect of residential environment. Moreover, its interior metallic sandwich panel structure has defects in residential comfort, sound insulation, appearance, energy conservation and fire protection and is unable to meet the requirements of internationally accepted building specifications and residential standards.
In view of the foregoing defects of prior art, modular accommodation units that are suitable for residence, can be easily transported and have certain capacity in energy conservation, fire resistance and wind resistance need to be provided.

Summary of the Invention
To address the foregoing problems of prior art, the object of the present invention is to provide a transportable modular accommodation unit, which is suitable for residence, can be easily transported, has certain capacity in energy conservation, fire resistance and wind resistance and possesses the standard features of industrial production.
The transportable modular accommodation unit according to the present invention comprises a roof structure, an exterior wall structure and a floor structure which are mutually connected into a box shape. The exterior wall structure comprises a metal plate, an interior wall panel and an exterior wall heat insulation layer provided between the metal plate and the interior wall panel. Studs and light steel keels are disposed in the exterior wall heat insulation layer. The roof structure comprises a roof, a top beam which supports the roof, a ceiling and a roof heat insulation layer provided between the roof and the ceiling. A space between the roof and the roof heat insulation layer forms an air thermal barrier. The floor structure comprises a bottom frame composed of bottom crossbeams and bottom longitudinal beams. Autoclaved lightweight
aerated concrete (ALC) slabs or fiber reinforced cement boards are provided on the bottom frame. Floor slabs are mounted on the surface of the autoclaved lightweight aerated concrete slabs or the fiber reinforced cement boards. Preferably, the metal plate is a corrugated anticorrosive metal plate.

Preferably, the roof is disposed in a sloping manner, and the supporting surface of the top beam has the same slope as the roof.

Preferably, the roof heat insulation layer and the exterior wall heat insulation layer are made of rock wool or glass wool.

Preferably, the interior wall panels and the ceiling are made of fiber cement boards or plaster boards.

Preferably, the lower surface of the ceiling is provided with a heat insulation aluminum film. Preferably, the floor slabs are PVC floor slabs, wooden floor slabs or tiles.

Preferably, a corridor awning is installed outside the modular accommodation unit. Preferably, from outside to inside, the exterior wall structure includes the metal plate, a foam aluminum film, exterior wall steel plates, the exterior wall heat insulation layer and the interior wall panel. The studs and light steel keels are disposed in the exterior wall heat insulation layer. Preferably, from outside to inside, the exterior wall structure includes the metal plate, a first layer of heat insulation aluminum film, the exterior wall heat insulation layer, a second layer of heat insulation aluminum film and the interior wall panel. The studs and light steel keels are disposed in the exterior wall heat insulation layer.

Preferably, the modular accommodation unit includes a partition structure which comprising: two partition walls, studs, and a double-layer light steel keel comprising two layers of light steel keels fixed together and a hollow layer provided between the two layers of light steel keels. The studs and the double-layer light steel kneel are provided between the two partition walls.

Preferably, the partition structure further comprises a partition insulation layer provided between the partition walls, the studs and the light steel kneels are provided in the partition insulation layer.

Present invention further provides an assembled modular accommodation unit which comprising at least two modular accommodation units described above. In the adjacent two modular accommodation units, a first fitting structure is provided at the top of the lower story of the modular accommodation unit, and a second fitting structure which is able to fit with the first fitting structure to dispose the modular accommodation units in stories is provided at the
bottom of the upper story of the modular accommodation unit.
Preferably, the roof is disposed in a sloping manner, and the supporting surface of the top beams has a same slope as the roof. A supporting corner piece is arranged at the end of the sloping roof of the lower story of the modular accommodation unit so that the top of the lower story forms a horizontal plane and the upper story of the modular accommodation unit can be placed on the plane.
Preferably, an external stairway is arranged on one side of the lower story of the modular accommodation unit. An external corridor is arranged between the lower story and the upper story of the modular accommodation unit and is supported on the groundwork by columns.
Preferably, a corridor awning is mounted on the top story of the modular accommodation unit.

The transportable modular accommodation unit provided by the present invention has a scientific and reasonable structure. It is a safe and healthy new-type structure. The present invention on the one hand inherits the original box structure of a dry cargo container and guarantees that the strength of the container house meets the requirements of CSC specifications and the requirements of related international construction specifications on wind resistance, shock resistance, structural safety, energy conservation, fire resistance, heat insulation and environmental protection and on the other hand guarantees the requirements on the appearance and comfort of the internal and external structures. Further, all heat insulating and decorative components adopt a prefabricated structure and adapt to the standard requirements of industrial decoration and industrial production. The present invention provides a single modular accommodation unit and a multiple-story assembled modular accommodation unit. Further, the modular accommodation unit provided by the present invention is installed with prefabricated parts. If relocation is needed, the house may be disassembled. After the prefabricated parts are moved to the new location, they may be reassembled into a new house for living, thereby meeting the requirement of transportable and flexible application.

Brief Description of the Drawings
FIG. 1 is a front view of a transportable modular accommodation unit according to an embodiment of the present invention;
FIG. 2 is a side view of a transportable modular accommodation unit according to an embodiment of the present invention;
FIG. 3 is an A-A section view of the transportable modular accommodation unit shown in FIG. 1;
FIG. 4 is a B-B section view of the transportable modular accommodation unit shown in FIG. 3;
FIG. 5 is an enlarged view of the section of the wall panel at location C of the transportable modular accommodation unit shown in FIG. 3; FIG. 6 is a schematic of the floor structure of a transportable modular accommodation unit according to an embodiment of the present invention;

FIG. 7 is a front view of a double-story assembled transportable modular accommodation unit provided by the present invention; FIG. 8 is a side view of a double-story assembled transportable modular accommodation unit provided by the present invention; FIG. 9 is an enlarged view of the side panel structure solution according to another embodiment of the present invention;

FIG. 10 is a schematic of the floor structure solution according to another embodiment of the present invention.

Embodiments

1- roof lateral covering; 2- corrugated anticorrosive metal plate; 3- roof vent; 4- corridor awning; 5- groundwork; 6- roof; 7- top beam; 8- locating piece; 9- roof heat insulation layer; 10- metal mesh; 11- heat insulation aluminum film; 12- keel clamp; 13- light steel keel; 14- interior wall panel; 15- wire conduit; 16- silicon gel; 17- foam aluminum film; 18- self threading screw; 19- exterior wall steel plate; 20- stud; 21- floor slab; 22- floor bolt; 23- autoclaved lightweight aerated concrete slab; 24- bottom crossbeam; 25- bottom longitudinal beam; 26- external stairway; 27- external corridor; 28- supporting corner piece; 29- exterior wall heat insulation layer; 30- fiber cement board

Detailed Description of the Embodiments

Hereinafter, the embodiments of the present invention will be described by referring to the accompanying drawings.

As shown in FIG. 1-10, the transportable modular accommodation unit (which can be referred to "house" for short) provided by the present invention comprises a roof structure, an exterior wall structure and a floor structure which are mutually connected into a box shape. The exterior wall structure comprises a metal plate 2, an interior wall panel 14 and an exterior wall heat insulation layer 29 provided between the metal plate 2 and the interior wall panel 14. Studs 20 and light steel keels 3 are disposed in the exterior wall heat insulation layer 29. The roof structure comprises a roof 6, a top beam 7 which supports the roof 6, a ceiling, and a roof heat insulation layer 9 provided between the roof 6 and the ceiling. A space between the roof 6 and
the roof heat insulation layer 9 from an air thermal barrier. The floor structure comprises a bottom frame composed of bottom crossbeams 24 and bottom longitudinal beams 25. Autoclaved lightweight aerated concrete slabs 23 or fiber reinforced cement boards 30 are provided on the bottom frame. Floor slabs 21 are mounted on the surface of the autoclaved lightweight aerated concrete slabs 23 or fiber reinforced cement boards 30.

The use of a roof structure, an exterior wall structure and a floor structure which are mutually connected into a box shape may provide the needed structural strength and meanwhile achieve good sound insulation and heat insulation effect. Specifically, the floor structure constitutes a bottom frame by bottom crossbeams 24 and bottom longitudinal beams 25, thereby meeting strength requirements, and achieves sound insulation and heat insulation effect by using autoclaved lightweight aerated concrete slabs 23 or fiber reinforced cement boards 30. The provision of studs 20 and light steel keels 13 in the exterior wall structure and in the roof structure enables the exterior wall structure and the roof structure to possess the needed strength and heat and sound insulation effect. The provision of the exterior wall heat insulation layer 29 and the roof heat insulation layer 9 in the exterior wall structure and the roof structure respectively may provide additional heat insulation effect for the house. Further, the provision of the air thermal barrier between the roof heat insulation layer 9 and the roof 6 may further improve the heat and sound insulation effect.

Preferably, the metal plate 2 is a corrugated anticorrosive metal plate, so as to have the anticorrosive function and excellent appearance.

Preferably, the roof 6 is disposed in a sloping manner, and the supporting surface of the top beams 7 has a same slope as the roof 6. The house may thereby have an inclined top surface, so that rain water could flow along the surface and be drained downward.

As for the structure of the foregoing modular house, as known to all, environment-friendly latex paint is painted on the surface of the interior wall, and separate sanitary and bathing facilities, beds, office chairs and tables, and home appliances may be installed inside the house. A heat insulation structure is arranged outside the box-type house. This structure and the interior heat insulation layer effectively guarantee the energy saving effect of the house. Further, a corridor awning 4 may be installed outside the house. During transportation, this corridor awning 4 may be packed inside the box-shaped house.

Preferably, the roof heat insulation layer 9 and the exterior wall heat insulation layer 29 may be made of rock wool or glass wool. The interior wall panels 14 and the ceiling may be made of fiber cement boards or plaster boards. A heat insulation aluminum film 11 may be provided on
the lower surface of the ceiling. The floor slabs 21 may be PVC floor slabs, wooden floor slabs or tiles.

Further, the exterior wall structure described in the foregoing basic technical solution has two kinds of more detailed preferable structure. The first kind of detailed preferable structure is as shown in FIG. 5. A foam aluminum film 17 and an exterior wall steel plate 19 are arranged between the exterior wall heat insulation layer 29 and the corrugated anticorrosive metal plate 2. That is to say, from outside to inside, the exterior wall structure includes the corrugated anticorrosive metal plate 2, the foam aluminum film 17, the exterior wall steel plate 19, the exterior wall heat insulation layer 29 and the interior wall panel 14. The studs 20 and light steel keels 13 are disposed in the exterior wall heat insulation layer 29. The foam aluminum film 17 is a film made of foam aluminum and having certain thickness and therefore can reduce the heat transfer between the anticorrosive metal plate 2 and the exterior wall steel plate 19, i.e. improve heat insulation effect. The thickness of this foam aluminum film 17 may be varied according to the use environment and heat insulation requirements. Further, the second kind of detailed preferable structure is as shown in FIG. 9. Two layers of heat insulation aluminum film 11 are arranged between the exterior wall heat insulation layer 29 and the corrugated anticorrosive metal plate 2 and between the exterior wall heat insulation layer 29 and the interior wall panels, respectively. That is to say, from outside to inside, this exterior wall structure includes the corrugated anticorrosive metal plate 2, a first layer of heat insulation aluminum film 11, the exterior wall heat insulation layer 29, a second layer of heat insulation aluminum film 11 and the interior wall panel 14. Studs 20 and light steel keels 13 are disposed in the exterior wall heat insulation layer 29. The heat insulation aluminum films 11 may be made of aluminum films which have certain thickness and possesses heat insulation effect. The first layer of heat insulation aluminum film 11 is used to reduce the heat transfer between the exterior wall heat insulation layer 29 and the anticorrosive metal plate 2. The second layer of heat insulation aluminum film 11 is used to reduce the heat transfer between the exterior wall heat insulation layer 29 and the interior wall panel 14, thereby improving heat insulation effect. The first layer of heat insulation aluminum film 11 and the second layer of heat insulation aluminum film 11 may be made of the aluminum films of a same material and/or thickness possessing heat insulation effect, or may be made of the aluminum films of different materials and/or thickness possessing heat insulation effect, according to use conditions and needs.

Further, appropriate models and dimensions or same models and dimensions may be selected for the studs 20 and light steel keels 13 in the exterior wall structure and in the roof structure.
according to the need.
The modular accommodation unit described above may be layered to form a multiple-story structure, namely the assembled modular accommodation unit, which comprising at least two modular accommodation units described above. In the adjacent two modular accommodation units, at the top of the lower story of the modular accommodation unit is provided with a first fitting structure, and at the bottom of the upper story of the modular accommodation unit is provided with a second fitting structure which is able to engage with the first fitting structure to dispose the modular accommodation units in stories.

Preferably, the roof 6 is disposed in a sloping manner, and the supporting surface of the top beams 7 has a same slope as the roof 6. A supporting corner piece is arranged at the end of the sloping roof 6 of the lower story of the modular accommodation unit so that the top of the lower story forms a horizontal plane and the upper story of the modular accommodation unit can be placed on the plane. In other words, the supporting corner piece 28 may be disposed at one end, i.e. the lower end, of the sloping roof 6 of the lower-story modular accommodation unit, thereby the top of the lower-story modular accommodation unit forms a horizontal plane and the upper-story modular accommodation unit may be placed thereon. The other end, i.e. the higher end, of the roof 6 and the supporting corner piece 28 each may be provided with the first fitting structure (mounting holes for example). The second fitting structures (mounting hole for example) may be arranged on the bottom crossbeam 24 and/or bottom longitudinal beam 25 of the floor structure, thereby the first fitting structure of the lower-story house is able to fit with the second fitting structure of the upper-story house (through bolts for example) to fix the upper-story house to the lower-story house.

Preferably, an external stairway 26 may be arranged on one side of the lower story of the modular accommodation unit. In addition, an external corridor 27 may also be arranged between the lower story and the upper story of the modular accommodation unit, and the external corridor 27 may be supported on the groundwork 5 by columns and fixed to the upper story of the modular accommodation unit.

Preferably, a corridor awning 4 may be mounted on the top story of the modular accommodation unit.

The modular accommodation unit provided by the present invention has the properties of energy conservation, fire resistance and wind resistance and can effectively meet the requirements of international specifications for accommodation units. Further, the house as a whole may be moved easily.
Hereinafter, the structure of the modular accommodation unit provided by the present invention will be described in more details through embodiments.

**Embodiment 1: Single transportable modular accommodation unit**

As shown in FIG. 1-3, the transportable modular accommodation unit provided by the present invention comprises a roof structure, an exterior wall structure and a floor structure, which are mutually connected into a box shape. The house formed may also be referred to as a “container transportable house” by those skilled in the art.

FIG. 4 shows the roof structure. The roof 6 is a sloping roof structure with certain sloping angle. The top beams 7 are used to support the roof 6. The supporting surface of the top beams 7 has the same sloping angle as that of the roof 6, so as to ensure sufficient strength of the roof 6. An air thermal barrier is formed between the roof 6 and the roof heat insulation layer 9. The heat at the top of the house is firstly discharged out of the house through the vents 3 located at the ends of the house.

Further, a locating piece 8 may be arranged between the roof heat insulation layer 9 and the top beam 7 to prevent dislocation of the roof heat insulation layer 9 during installation or transport. Specifically, locating holes may be provided in the top beams 7 and one end of the locating piece 8 may be inserted into a corresponding locating hole, so that the other end of the locating piece 8 will contact the top heat insulation layer 9. In use, the locating piece 8 may prevent the roof heat insulation layer 9 from moving along the height direction of the house, i.e. preventing the roof heat insulation layer 9 from moving towards the top beam 7. The locating piece 8 may adopt various forms. For example, the locating piece 8 may be a deformation-resistant bar with predetermined strength (steel wires for example). It is understandable to those skilled in the art that other appropriate methods may be adopted to locate the roof heat insulation layer 9 relative to the top beams 7.

Further, the roof structure may comprise a metal mesh 10, which is disposed below the roof heat insulation layer 9 and fixed to the top beams 7 in order to fix the roof heat insulation layer 9 relative to the top beams 7. It is understandable to those skilled in the art that other appropriate methods may be adopted to directly or indirectly fix the roof heat insulation layer 9 relative to the top beams 7.

Preferably, certain space is reserved between the heat insulation layer 9 and the ceiling (which is, for example, fiber cement board) to accommodate wire conduit 15 in the house. A layer of damp-proof heat insulation aluminum film 11 is provided on the lower surface of the ceiling. Further, as shown in FIG. 2, the lateral part of the top of the modular accommodation unit may
be covered with roof lateral covering 1 (which could be a covering plate), and roof vents 3 may be formed in the roof lateral covering 1.

FIG. 5 shows the exterior wall structure. From outside to inside, this exterior wall structure includes a corrugated anticorrosive metal plate 2, a heat insulating and flame retardant foam aluminum film 17, an exterior wall steel plate 19, an exterior wall heat insulation layer 29 (which could be for example rock wool, glass wool or any other heat insulation layer) and an interior wall panel 14. Studs 20 and light steel keels 13 are disposed in the exterior wall heat insulation layer 29. The interior wall panel 14 may be cement board, plaster board or other environment-friendly material. The light steel keels 13 may be appropriately fixed via keel holder 12. Further, as shown in FIG. 5, the corrugated anticorrosive metal plates 2 may be connected with self threading screw 18, for example to the exterior wall steel plate 19, and silicon gel 16 is applied at the connecting position.

FIG. 9 shows an alternative embodiment of the exterior wall structure. From outside to inside, this exterior wall structure includes a corrugated anticorrosive metal plate 2, a heat insulating aluminum film 11, an exterior wall heat insulation layer 29, a heat insulation aluminum film 11 and an interior wall panel 14. Studs 20 and light steel keels 13 are disposed in the exterior wall heat insulation layer 29. As described above, the interior wall panels 14 may be cement board, plaster board or other environment-friendly material.

As shown in FIG. 3, in this embodiment, the house may comprise a partition structure to separate the internal space of the house into a plurality of compartments. Preferably, the partition structure comprises: two partition walls, studs, and a double-layer light steel keel comprising two layers of light steel keels fixed together and a hollow layer provided between the two layers of light steel keels. The studs and the double-layer light steel kneel are provided between the two partition walls. The partition walls may be made of the material same as the material of the interior wall panel 14 and/or the ceiling. The studs and light steel keels may choose the models and dimensions same as the models and dimensions of the studs and light steel keels of the exterior wall structure and/or the roof structure according to need. The hollow structure of the double-layer light steel keel effectively ensures the sound insulation effect and structural strength. More preferably, the partition structure also comprises a partition heat insulation layer provided between the two partition walls. The studs and the double-layer light steel keels are disposed in the heat insulation layer. The heat insulation layer of the partitions may be made of the material same as the material of the exterior wall heat insulation layer 29 and/or the heat insulation layer 9.
The floor structure shown in FIG. 6 is a bottom autoclaved lightweight aerated concrete slab structure. The size and quantity of the autoclaved lightweight aerated concrete slabs 23 and bottom crossbeams 24 are selected according to the bearing strength of the bottom structure. If the bottom structure is wide, more bottom longitudinal beams 25 may be added as needed to increase the strength of the bottom structure. The floor slab 21 may be selected from PVC floor leather, tiles or other materials. The floor slab 21 may be fixed to autoclaved lightweight aerated concrete slab 30 with floor screw 22.

FIG. 10 shows an alternative embodiment of the floor structure. The size and quantity of fiber reinforced cement boards 30 and bottom crossbeams 24 are selected according to the bearing strength of the bottom structure. If the bottom structure is wide, more bottom longitudinal beams 25 may be added as needed to increase the strength of the bottom structure. The floor slab 21 may be selected of PVC floor leather, tiles or other materials. Likewise, the floor slab 21 may be fixed to autoclaved lightweight aerated concrete slab 30 with floor screw 22.

Embodyment 2: Assembled transportable modular accommodation unit

As shown in FIG. 7 and FIG. 8, the double-layer assembled transportable modular accommodation unit provided by the present invention comprises an external stairway 26, an external corridor 27, a corridor awning 4 and supporting corner pieces 28 etc.

FIG. 8 shows a side view of the double-layer assembled modular accommodation unit. The supporting corner pieces 28 are disposed at the lower end of the sloping roof 6 of the lower-story modular accommodation unit, to ensure the top surface of the lower-story modular accommodation unit is on the same horizontal plane and the upper-story container house may be placed thereon easily. The corridor awning 4 is provided with certain sloping angle. The external corridor 27 between stories is supported on the groundwork 5 by columns and connected to the upper-layer modular accommodation unit with bolts in a fixed manner.

FIG. 7 shows an external stairway structure. The external stairway 26 is connected to the modular accommodation unit and groundwork with bolts in a fixed manner. Handhold is provided on the outer side of the stairway for the sake of walking safety. The entrance of the external stairway is at the back of the house. Further, other detail structures of this double-story assembled transportable modular accommodation unit may refer to the description of Embodiment 1.

From the above description, it may be seen that the transportable modular accommodation unit provided by the present invention has a scientific and reasonable structure and is a safe and healthy new-type structure. The present invention on the one hand inherits the original box
structure of a dry cargo container and ensures that the strength of the container-based house meets the requirements of CSC (i.e. China Standard Certification Center of China National Institute of Standardization) specifications and the requirements of related international construction specifications on wind resistance, shock resistance, structural safety, energy conservation, fire resistance, heat insulation and environmental protection and on the other hand ensures the requirements on the appearance and comfort of the internal and external structures. Further, all heat insulating and decorative components adopt a prefabricated structure and adapt to the standard requirements of industrial decoration. The present invention provides single and multiple-story assembled transportable modular accommodation units. Moreover, the modular accommodation unit provided by the present invention is installed with prefabricated parts. If relocation is needed, the house may be disassembled. After the prefabricated parts are moved to the new location, they may be reassembled into a new house for living, thereby meeting the requirement of transportable and flexible application. All specific technical characteristics described in the above specific embodiments may be freely combined in any appropriate way. They all fall into the scope disclosed by the present invention. Further, the embodiments of the present invention may also be freely combined. As long as they don't violate the spirit of the present invention, they should also be deemed as the content disclosed by the present invention. Above the preferred embodiments of the present invention are described in details by referring to the accompanying drawings, but the present invention is not limited to the concrete details of the above embodiments. Within the scope of the technical consideration of the present invention, simple modifications may be made to the technical solutions of the present invention. These simple modifications all belong to the protective scope of the present invention. The protective scope of the present invention is only limited by claims appended.
Claims

1. A transportable modular accommodation unit, comprising a roof structure, an exterior wall structure and a floor structure which are mutually connected into a box shape, characterized in that, the exterior wall structure comprises a metal plate (2), an interior wall panel (14) and an exterior wall heat insulation layer (29) provided between the metal plate (2) and the interior wall panel (4), studs (20) and light steel keels (13) are disposed in the exterior wall heat insulation layer (29); the roof structure comprises a roof (6), a top beam (7) which support the roof (6), a ceiling and a roof heat insulation layer (9) provided between the roof (6) and the ceiling, a space between the roof (6) and the roof heat insulation layer (9) forms an air thermal barrier; the floor structure comprises a bottom frame composed of bottom crossbeams (24) and bottom longitudinal beams (25), autoclaved lightweight aerated concrete slabs (23) or fiber reinforced cement boards (30) are provided on the bottom frame, floor slabs (21) are mounted on the surface of the autoclaved lightweight aerated concrete slabs (23) or the fiber reinforced cement boards (30).

2. The transportable modular accommodation unit according to claim 1, wherein the metal plate (2) is a corrugated anticorrosive metal plate.

3. The transportable modular accommodation unit according to claim 1, wherein the roof (6) is disposed in a sloping manner, and the supporting surface of the top beam (7) has the same slope as the roof (6).

4. The transportable modular accommodation unit according to claim 1, wherein the roof heat insulation layer (9) and the exterior wall heat insulation layer (29) are made of rock wool or glass wool.

5. The transportable modular accommodation unit according to claim 1, wherein the interior wall panel (14) and the ceiling are made of fiber cement boards or plaster boards.

6. The transportable modular accommodation unit according to claim 1, wherein the lower surface of the ceiling is provided with a heat insulation aluminum film (11).
7. The transportable modular accommodation unit according to claim 1, wherein the floor slab (21) is selected from PVC floor slabs, wooden floor slabs or tiles.

8. The transportable modular accommodation unit according to claim 1, wherein a corridor awning (4) is installed outside the modular accommodation unit.

9. The transportable modular accommodation unit according to claim 1, wherein from outside to inside, the exterior wall structure includes the metal plate (2), a foam aluminum film (17), an exterior wall steel plate (19), the exterior wall heat insulation layer (29) and the interior wall panel (14), the studs (20) and light steel keels (13) are disposed in the exterior wall heat insulation layer (29).

10. The transportable modular accommodation unit according to claim 1, wherein from outside to inside, the exterior wall structure includes the metal plate (2), a first layer of heat insulation aluminum film (11), the exterior wall heat insulation layer (29), a second layer of heat insulation aluminum film (11) and the interior wall panel (14), the studs (20) and light steel keels (13) are disposed in the exterior wall heat insulation layer (29).

11. The transportable modular accommodation unit according to claim 1, wherein the modular accommodation unit includes a partition structure comprising: two partition walls; studs; and a double-layer light steel keel comprising two layers of light steel keels fixed together and a hollow layer provided between the two layers of light steel keels, the studs and the double-layer light steel kneel are provided between the two partition walls.

12. The transportable modular accommodation unit according to claim 11, wherein the partition structure further comprises a partition insulation layer provided between the partition walls, the studs and the light steel kneels are provided in the partition insulation layer.

13. An assembled modular accommodation unit comprising at least two modular accommodation units according to any of claims 1 to 11, in adjacent two modular accommodation units, a first fitting structure is provided at the top of the lower story of the
modular accommodation unit, and a second fitting structure which is able to fit with the first fitting structure to dispose the modular accommodation units in stories is provided at the bottom of the upper story of the modular accommodation unit.

14. The assembled modular accommodation unit according to claim 13, wherein the roof (6) is disposed in a sloping manner, and the supporting surface of the top beam (7) has a same slope as the roof (6), a supporting corner piece (28) is arranged at the end of the sloping roof (6) of the lower story of the modular accommodation unit so that the top of the lower story forms a horizontal plane and the upper story of the modular accommodation unit can be placed on the plane.

15. The assembled modular accommodation unit according to claim 13, wherein an external stairway (26) is arranged on one side of the lower story of the modular accommodation unit, an external corridor (27) is arranged between the lower story and the upper story of the modular accommodation unit and is supported on the groundwork (5) by columns.

16. The assembled modular accommodation unit according to claim 15, wherein a corridor awning (4) is mounted on the top story of the modular accommodation unit.
Fig. 4
INTERNATIONAL SEARCH REPORT

International application No. PCT/CN2011/071574

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: E04H1, E04B2, E04B5, E04B7

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT,CNKI,WPLEPODOC:

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>A</td>
<td>CN20149563 IU(YANGZHOU TONGLI REFRIGERATED CONTAINER), 02 Jun.2010(02.06.2010), the whole document</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

'A' document defining the general state of the art which is not considered to be of particular relevance

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'P' document published prior to the international filing date but later than the priority date claimed

'T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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& 'document member of the same patent family

Date of the actual completion of the international search: 20 Aug.2011 (20.08.2011)

Date of mailing of the international search report: 08 Sep. 2011 (08.09.2011)

Name and mailing address of the ISA/CN
The State Intellectual Property Office, the P.R.China
6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088
Facsimile No. 86-10-62019451

Authorized officer: WAN, Renhui
Telephone No. (86-10)62085504

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## INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

E04H1/02 (2006.01) i
E04H1/04 (2006.01) i
E04B 1/343 (2006.01) i
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E04B7/00 (2006.01) i
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