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(54) Title of the Invention Building Structure

(57) Abstract

【Problem】

To provide a building structure that facilitates renovation and structural modification and has high durability, fire resistance, and sound insulation properties.

【Solution】

The outermost exterior wall (2) of the building and the floor slab (1) are formed as a single monolithic concrete structure. Alternatively, partition walls (3), arranged parallel to the exterior wall (2), and the floor slab (1) are formed as a single monolithic concrete structure. Between the walls, non-concrete partition walls (4) made of wood, steel, or the like are installed in a direction perpendicular to the walls.

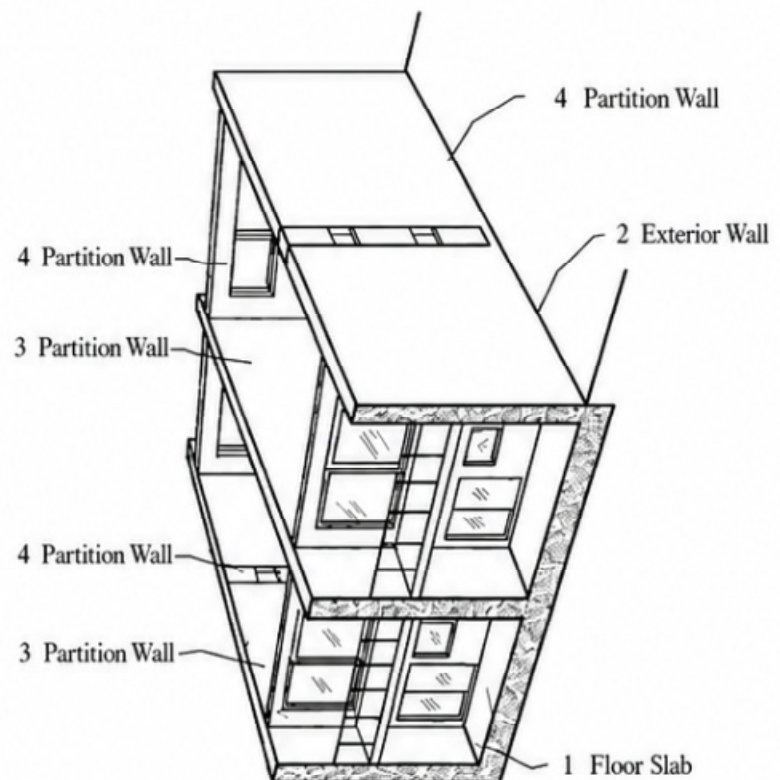
【Selected Drawing】 Figure 2

Figure 2

【Claims】**【Claim 1】**

A building structure constructed by arranging a plurality of buildings adjacent to each other on a common floor slab with boundary walls in contact with each other,
wherein:

the outermost exterior walls of the plurality of buildings,
boundary walls provided between the buildings and arranged parallel to the exterior walls, and
a floor slab common to the plurality of buildings
are formed as a single monolithic concrete structure;
and
non-concrete partition walls made of wood, steel, or the like are provided between the
boundary walls in a direction perpendicular to the boundary walls.

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【Claim 2】

The building structure according to Claim 1,
wherein support members for supporting floor materials, ceiling materials, or the like are
provided so as to project horizontally from the inner surfaces of the exterior walls and the
surfaces of the boundary walls.

【Claim 3】

A building structure constructed on a floor slab,
wherein:

the outermost exterior walls of the building and the floor slab are formed as a single
monolithic concrete structure;
and
non-concrete partition walls made of wood, steel, or the like are provided between the
exterior walls in a direction perpendicular to the exterior walls.

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【Detailed Description of the Invention】**【Technical Field】****【0001】**

The present invention relates to a building structure.

【Background Art】**【0002】**

Needless to cite published documents, buildings have conventionally been constructed using the following construction methods:

1. Reinforced concrete construction.
2. Wooden post-and-beam construction.
3. Two-by-four construction.
4. Steel-frame construction.
5. Precast concrete construction.

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【Disclosure of the Invention】**【Problems to be Solved by the Invention】****【0003】**

The conventional building structures described above have the following problems.

(1) Reinforced concrete construction is excellent in durability, fire resistance, and sound insulation. However, once constructed, it is difficult to modify the building even when family composition or usage requirements change.

(2) On the other hand, wooden post-and-beam construction and two-by-four construction are easy to modify, but are considerably inferior in durability, fire resistance, and sound insulation compared with reinforced concrete construction.

(3) Even in steel-frame construction, considerable cost is required to maintain durability and sound insulation performance.

(4) Regardless of the construction method employed, changing the exterior appearance of a building often affects the load-bearing walls and seismic structural system. Therefore, even when it is desired to change the exterior design in response to changing times, it is difficult to satisfy such requirements.

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(5) When a portion of the building deteriorates, it is difficult to dismantle and modify only that portion without affecting other parts.

(6) In particular, when the wooden structural frame of a building is deteriorated by white ants, the damage affects the entire upper structure of the building. Therefore, it is difficult to repair only the foundation part without affecting the upper part.

【Means for Solving the Problems】

【0 0 0 4】

In order to solve the above-described problems, the building structure of the present invention is characterized by being constructed on a common floor slab with boundary walls in contact with each other by arranging a plurality of buildings adjacent to each other, wherein the outermost exterior walls of the plurality of buildings, boundary walls provided between the buildings and arranged parallel to the exterior walls, and a floor slab common to the plurality of buildings are formed as a single monolithic concrete structure, and non-concrete partition walls made of wood, steel, or the like are provided between the boundary walls in a direction perpendicular to the boundary walls.

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【0 0 0 5】

Furthermore, the building structure of the present invention is characterized by being constructed on a floor slab, wherein the outermost exterior walls of the building and the floor slab are formed as a single monolithic concrete structure, and non-concrete partition walls made of wood, steel, or the like are provided between the exterior walls in a direction perpendicular to the exterior walls.

【Effects of the Invention】

【0 0 0 6】

As described above, the building structure of the present invention can obtain the following effects.

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(1) It is possible to obtain durability, fire resistance, and sound insulation in important structural parts made of reinforced concrete, and it is possible to easily change the structure according to changes in family composition or use. Therefore, it is possible to easily change for conversion to multi-family housing or to offices from residences.

(2) Even when the exterior appearance of the building is changed, it is possible to change the appearance design of the building easily without affecting the load-bearing walls and seismic structural system. Therefore, it is possible to easily change the exterior design of the building in response to changes in times, and it is suitable for rental housing, offices, and stores.

(3) When a portion of the building deteriorates, it is possible to dismantle and modify only that portion without affecting other parts.

(4) Even when the wooden structural frame or foundation at the bottom of the columns of the building deteriorates, it is possible to repair only the foundation part without affecting the upper structure. Therefore, for example, it is possible to dismantle and repair the second-floor occupants while the first-floor part or the foundation part can be dismantled and repaired.

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(5) It is possible to carry out repair or change of use without affecting the adjacent building.

(6) It is possible to divide freely even when the building abuts a boundary wall and is in contact with it.

(7) Since the amount of concrete used is minimized compared with conventional concrete construction, it is possible to suppress the generation of construction waste to the minimum, thereby facilitating future dismantling.

(8) The concrete part serving as the basis of the exterior wall and boundary wall is a single slab. Therefore, by simple work, it is possible to construct a high-precision wall at low cost and to construct the building at low cost.

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(9) Since the main structural parts can be constructed using the two-by-four method or a steel frame, it is possible to construct at low cost while having the heavy feeling and stability of reinforced concrete, and it is possible to obtain a large benefit as rental housing.

【Best Mode for Carrying Out the Invention】

【0 0 0 7】

A preferred embodiment of the present invention will be described in detail below with reference to the drawings.

【Embodiment】

【0 0 0 8】

< 1 > Common floor slab.

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The building structure of the present invention is a structure constructed integrally on a common concrete floor slab 1 of a plurality of buildings.

The floor slab 1 is a flat slab of reinforced concrete structure that can receive external forces acting on an exterior wall 2 constructed vertically above it and a boundary wall 3.

【 0 0 0 9 】

< 2 > Boundary wall 3.

A plurality of buildings are constructed in a state of being arranged adjacent to each other on the floor slab 1, with boundary walls 3 in contact with each other.

That is, adjacent buildings are linked to each other through boundary walls 3.

The boundary wall 3 is a concrete wall having a height corresponding to the second and third floors of each building.

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The boundary wall 3 is disposed vertically above the floor slab 1 in the same direction as the exterior wall 2 described later, parallel to the exterior wall 2, and perpendicular to the floor slab 1.

When openings are provided in the boundary wall 3 and are closed by doors, windows, or blocks without fixing them, the boundary wall 3 can also be used as a connection passage between adjacent houses or as two separate units in the future.

【 0 0 1 0 】

< 3 > Exterior wall 2.

The outermost exterior wall 2 of a plurality of buildings is arranged vertically.

Therefore, the exterior wall 2 is located on both sides outside the building group.

In this manner, on the common floor slab 1, exterior walls 2 are provided on both sides thereof, and boundary walls 3 arranged in parallel with exterior walls 2 are provided between the exterior walls 2.

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Since the exterior walls 2 and boundary walls 3 are single vertical concrete slabs, they can be constructed easily and at low cost.

Furthermore, since they are single concrete slabs, it is possible to construct high-precision walls even by unskilled workers.

Moreover, when standardized formwork is prepared and used, it is possible to construct high-precision walls at lower cost and in a short time.

The exterior wall 2 is of concrete construction and therefore has little influence on the indoor living space.

Since the exterior wall 2 is divided in the vertical direction as shown in the embodiment of Figure 2, it is possible to provide openings in the form of windows in the middle portion, making the construction simpler than opening openings like windows in the middle portion.

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【 0 0 1 1 】

< 4 > Partition wall 4.

Between the boundary walls 3 made of concrete and between the boundary wall 3 and the exterior wall 2, partition walls 4 are provided.

The partition wall 4 is made of non-concrete materials such as wood or steel, and is provided perpendicularly to the boundary wall 3.

This partition wall 4 forms the interior exterior walls on the front sides of the respective buildings.

Furthermore, in the space between the partition wall 4 and the boundary wall 3, walls for separating rooms and spaces such as corridors, stairs, and toilets are provided.

Doors, windows, and various types of openings are provided in the partition wall 4.

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As the partition wall 4, it is possible to use materials that resist external forces in the direction perpendicular to the boundary wall 3, such as conventional wooden post-and-beam construction, two-by-four construction, or lightweight steel framing.

【 0 0 1 2 】

< 5 > Support member 5.

From the inner surfaces of the exterior wall 2 and the surfaces of the boundary wall 3, support members 5 project in the horizontal direction.

The support members 5 are, for example, L-shaped steel, concrete beams, and the like fixed with bolts.

By projecting the support members 5 in the horizontal direction, a support member 5 is provided between the boundary walls 3.

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This makes it possible to easily and reliably support horizontal members 51 such as roots of floors or second floors and ceiling materials.

【 0 0 1 3 】

< 6 > Structures other than walls.

In the case of a maisonette type, the floors of the second and third floors are arranged, and stairways connecting the floors are arranged.

Moreover, in the case where the second and third floors are not divided, the building can be used as a store with high ceiling height corresponding to the height of the boundary wall 3, and it can also be divided into a plurality of floors above and below as required in the future. 10

The uppermost part is formed as a roof, thereby completing the structure of the building.

Note that the uppermost part of the boundary wall 3 is not necessarily constructed, and the upper part thereof may be formed of materials other than concrete.

Alternatively, if the height of the roof is lower than the height of the boundary wall 3, it is possible to obtain a unique design in which the boundary wall 3 protrudes between adjacent buildings, and it is also effective for fire prevention.

【 0 0 1 4 】

< 7 > Other embodiments.

The above description has been given for the case where a plurality of buildings are constructed on the common floor slab 1, but it can also be used for a single-house building.

That is, in the case where a building is constructed on the floor slab 1, the outermost exterior walls 2 of the building and the floor slab 1 are formed as a single monolithic concrete structure.

Between the exterior walls 2, non-concrete partition walls 4 made of wood, steel, or the like are arranged in a direction perpendicular to the exterior walls 2. 20

【 Brief Description of the Drawings 】

【 0 0 1 5 】

【 Fig. 1 】 An explanatory diagram showing an embodiment of the structure of the floor slab, exterior wall, and boundary wall.

【 Fig. 2 】 An explanatory diagram showing a state in which non-concrete partition walls are provided between the exterior wall and the boundary wall.

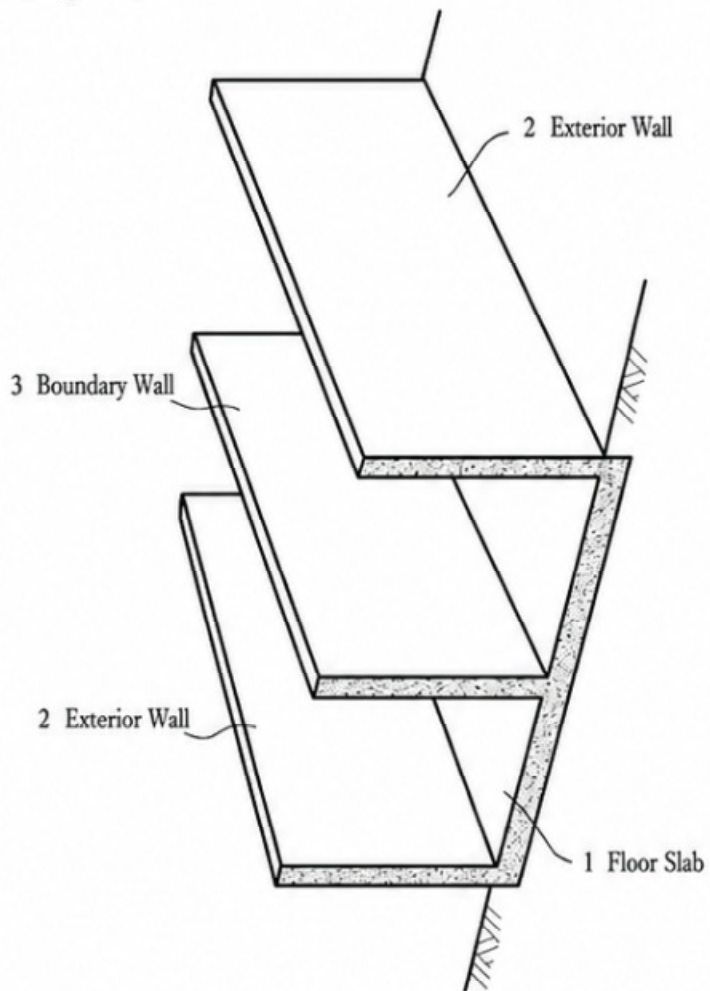
【 Fig. 3 】 An explanatory diagram showing a support member projecting from the wall.

【 Explanation of Reference Numerals 】

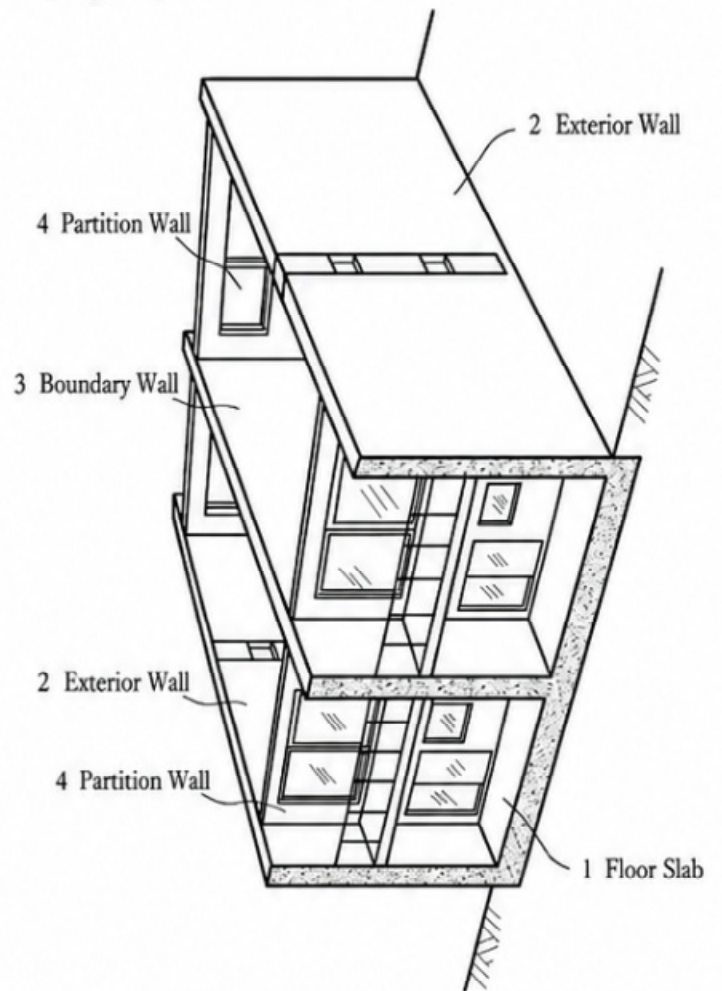
【 0 0 1 6 】

- 1 : Floor slab
- 2 : Exterior wall
- 3 : Boundary wall
- 4 : Partition wall

【Fig. 1】



【Fig. 2】



【Fig. 3】

