

【DESCRIPTION】**【Invention Title】**

PREFABRICATED WALL

【Technical Field】

5 The present invention relates to a prefabricated wall that is capable of installing joint members between neighboring prefabricated wall units spaced apart from each other to connect the neighboring prefabricated wall units to each other, thereby allowing the prefabricated wall units to
10 be simply joined and allowing lightweight permanent forms to be pre-coupled easily thereto.

【Background Art】

 To construct a reinforced concrete structure, a cast-in-place concrete technology is used to thus cast concrete on
15 a construction site into a form after reinforcement bars and the form have been installed, and accordingly, the cast-in-place concrete technology is much influenced by the conditions of the construction site and needs high labor intensity. Therefore, there is a limitation in reducing a
20 construction period, and further, it is hard to control the quality of the construction. While the form is being installed, moreover, temporary works have to be performed to support the form, and in the case where large-sized members for the form are used, system supports should be used,
25 thereby undesirably increasing the construction period and cost.

 Accordingly, a precast concrete (PC) technology wherein concrete members are pre-made in a factory and then fabricated on the construction site is increasingly applied.

30 However, the PC technology requires high lifting and transporting costs in the case of big members.

As one example of conventional technologies related to a prefabricated wall, a prefabricated wall frame unit, which includes vertical support members, horizontal support members, vertical reinforcement bars, and horizontal reinforcement bars and is pre-fabricated in a factory to require no reinforcement bar arrangement work on a construction site, has been suggested by the same applicant as this invention (which is disclosed in Korean Patent No. 10-1490756). In this case, the vertical support members of neighboring prefabricated wall frame units facingly contact with each other, and next, they are fixed to each other by means of bolts.

If the horizontal support members like angles are coupled to the outsides of the vertical support members, however, the vertical support members may not be joined to each other.

As prefabricated forms are fixed to both sides of the wall unit by means of foam ties, further, the number of fastened points by the foam ties has to be increased to support a concrete injection pressure, thereby needing a lot of time for installing the prefabricated forms and having the limitations in the application of the prefabricated forms as permanent forms.

As another example of conventional technologies related to a prefabricated wall, a prefabricated wall frame unit, which is configured to allow dowel bars protruding from one side end portion thereof to be inserted into the prefabricated form of the other side prefabricated wall frame unit, has been suggested by the same applicant as this invention (which is disclosed in Korean Patent No. 10-1499811).

In this case, the dowel bars protrude from one side end portion of the prefabricated wall frame unit, and accordingly, they may interfere with the prefabricated wall frame unit, while the prefabricated wall frame unit is transporting and
5 fabricating, thereby making it inconvenient to perform the construction work. As the prefabricated form is directly coupled to the vertical support members, besides, it is difficult to ensure the cover thickness for the vertical support members, and in the case where a distance between the
10 vertical support members is long, the vertical support members may be deformed due to concrete casting.

As yet another example of conventional technologies related to a prefabricated wall, a prefabricated wall frame, which is configured to allow horizontal joint bars
15 temporarily coupled to horizontal reinforcement bars to be slidably moved and thus joined to the horizontal reinforcement bars of a neighboring prefabricated wall frame, has been suggested by the same applicant as this invention (which is disclosed in Korean Patent No. 10-1570790).

20 In this case, the fastened states of the horizontal joint bars to the horizontal reinforcement bars have to be released, slidably moved, and then coupled to the horizontal reinforcement bars of the neighboring prefabricated wall frame, thereby undesirably making it inconvenient to perform
25 the fastening works. Further, the horizontal joint bars are coupled to the vertical support members, and if it is desired to pre-attach the permanent form to the vertical support members, accordingly, it is hard to apply the horizontal joint bars to the prefabricated wall frame.

30 **【Disclosure】**

【Technical Problem】

Accordingly, the present invention has been made in view of the above-mentioned problems occurring in the related art, and it is an object of the present invention to provide a prefabricated wall that is capable of easily pre-coupling
5 lightweight permanent forms thereto and allowing neighboring prefabricated wall units to be joined simply to each other, thereby providing efficient constructability.

【Technical Solution】

To accomplish the above-mentioned object, according to
10 the present invention, there is provided a prefabricated wall having a plurality of prefabricated wall units connected transversely to each other, each prefabricated wall unit having vertical support members as Γ -shaped section steel disposed on four rectangular corners thereof, a plurality of
15 horizontal support members for connecting the neighboring vertical support members to each other in a horizontal direction thereof, and lightweight permanent forms coupled to the horizontal support members, the prefabricated wall including joint members disposed on both sides of the
20 neighboring prefabricated wall units spaced apart from each other by a given distance, each joint member being adapted to allow both ends thereof to be fixed to the vertical support members of the neighboring prefabricated wall units and having a plurality of horizontal connection members disposed
25 on the positions corresponding to the horizontal support members of the neighboring prefabricated wall units in such a way as to be arranged misalignedly up and down to the horizontal support members, without having any interference with the horizontal support members and a lightweight
30 permanent form coupled to the outer surfaces of the horizontal connection members, wherein the lightweight permanent form of the prefabricated wall units and the

lightweight permanent form of each joint member may include flat plates adapted to build the outer surfaces of the prefabricated wall units and protrusions having $\sqcap$ -shaped sections arranged in a plurality of columns in such a manner as to protrude from the inner surfaces of the flat plates in longitudinal directions thereof; each horizontal support member and each horizontal connection member may be $\sqcap$ -shaped to allow one side leg to be fixedly coupled to the vertical support members and to allow the other side leg to have $\sqcap$ -shaped locking holes whose inlets are larger than widths of the protrusions so as to insertedly lock the protrusions thereinto; in a state where the protrusion protruding from one side end portion of the lightweight permanent form of the joint member comes into close contact with the inner surface of the protrusion protruding from the end portion of the lightweight permanent form coupled to one side prefabricated wall unit, the other side end portion of the joint member may be rotated to allow the protrusion protruding from the other side end portion of the lightweight permanent form of the joint member to come into close contact with the outer surface of the protrusion protruding from the end portion of the lightweight permanent form coupled to the other side prefabricated wall unit; and each joint member may be fixed to the prefabricated wall units by means of fastening bolts that pass through the flat plate of the lightweight permanent form and one side leg of the horizontal connection members and be then fastened to the vertical support members of the prefabricated wall units.

According to the present invention, desirably, each joint member may include sleeves disposed between fastening holes formed on the flat plate of the lightweight permanent

form and fastening holes formed on one side leg of the horizontal connection members.

【Advantageous Effects】

According to the present invention, the prefabricated
5 wall has the following advantages.

Firstly, the joint members are disposed between the neighboring prefabricated wall units spaced apart from each other by the given distance to connect the neighboring prefabricated wall units to each other, thereby allowing the
10 neighboring prefabricated wall units to be easily joined to each other in a simple manner, and even though the horizontal support members are coupled to the outsides of the vertical support members on the end portions of the prefabricated wall units, accordingly, they can be easily installed, without any
15 interference with the vertical support members.

Secondly, the lightweight permanent forms are coupled to the horizontal support members of the prefabricated wall units and the horizontal connection members of the joint members, and accordingly, the lightweight permanent forms and
20 the joint members may be fabricated and produced as a unitary body, thereby making it easy to pre-couple the lightweight permanent forms.

Lastly, after the prefabricated wall units and the joint members have been installed, concrete is just cast in the
25 interior of the wall units on a construction site, thereby ensuring easy construction work and reducing a construction period.

【Description of Drawings】

FIG. 1 is a perspective view showing coupling relations
30 between prefabricated wall units and joint members of a prefabricated wall according to the present invention.

FIG. 2 is a perspective view showing the joint member of the prefabricated wall according to the present invention.

FIG. 3 is an interior elevation view showing the coupling relations between the prefabricated wall units and the joint member of the prefabricated wall according to the present invention.

FIG. 4 is a perspective view showing the lightweight permanent form of the joint member according to the present invention.

FIG. 5 is a perspective view showing coupling relations between horizontal support members and a vertical support member according to the present invention.

FIGs. 6a and 6b are plan views showing coupling processes of the lightweight permanent form to the horizontal support member or the horizontal connection member.

FIGs. 7a to 7c are plan views showing installing processes of the joint member according to the present invention.

FIG. 8 is a perspective view showing coupling relations of fastening bolts according to the present invention.

【Best Mode for Invention】

A prefabricated wall according to the present invention includes a plurality of prefabricated wall units connected transversely to each other, each prefabricated wall unit having vertical support members as Γ -shaped section steel disposed on four rectangular corners thereof, a plurality of horizontal support members for connecting the neighboring vertical support members to each other in a horizontal direction thereof, and a lightweight permanent form coupled to the horizontal support members, and joint members disposed on both sides of the neighboring prefabricated wall units spaced apart from each other by a given distance, each joint

member being adapted to allow both ends thereof to be fixed to the vertical support members of the neighboring prefabricated wall units and having a plurality of horizontal connection members disposed on the positions corresponding to the horizontal support members of the neighboring prefabricated wall units in such a way as to be arranged misalignedly up and down to the horizontal support members, without having any interference with the horizontal support members and a lightweight permanent form coupled to the outer surfaces of the horizontal connection members, wherein the lightweight permanent form of the prefabricated wall units and the lightweight permanent form of each joint member include flat plates adapted to build the outer surfaces of the prefabricated wall units and protrusions having $\cap$ -shaped sections arranged in a plurality of columns in such a manner as to protrude from the inner surfaces of the flat plates in longitudinal directions thereof; each horizontal support member and each horizontal connection member are $\cap$ -shaped to allow one side leg to be fixedly coupled to the vertical support members and to allow the other side leg to have $\cap$ -shaped locking holes whose inlets are larger than widths of the protrusions so as to insertedly lock the protrusions thereinto; in a state where the protrusion protruding from one side end portion of the lightweight permanent form of the joint member comes into close contact with the inner surface of the protrusion protruding from the end portion of the lightweight permanent form coupled to one side prefabricated wall unit, the other side end portion of the joint member is rotated to allow the protrusion protruding from the other side end portion of the lightweight permanent form of the joint member to come into close contact with the outer surface of the protrusion protruding from the end portion of

the lightweight permanent form coupled to the other side prefabricated wall unit; and each joint member is fixed to the prefabricated wall units by means of fastening bolts that pass through the flat plate of the lightweight permanent form and one side leg of the horizontal connection members and are then fastened to the vertical support members of the prefabricated wall units.

【Mode for Invention】

Hereinafter, the present invention will be explained in detail with reference to the attached drawings.

FIG. 1 is a perspective view showing coupling relations between prefabricated wall units and joint members of a prefabricated wall according to the present invention, FIG. 2 is a perspective view showing the joint member of the prefabricated wall according to the present invention, and FIG. 3 is an interior elevation view showing the coupling relations between the prefabricated wall units and the joint member of the prefabricated wall according to the present invention.

According to the present invention, as shown in FIGs. 1 to 3, there is provided a prefabricated wall 1 having a plurality of prefabricated wall units 10 and 10' connected transversely to each other, each prefabricated wall unit having vertical support members 11 as ㄣ-shaped section steel disposed on four rectangular corners thereof, a plurality of horizontal support members 12 for connecting the neighboring vertical support members 11 to each other in a horizontal direction thereof, and a lightweight permanent form 13 coupled to the horizontal support members 12, the prefabricated wall 1 including joint members 20 disposed on both sides of the neighboring prefabricated wall units 10 and 10' spaced apart from each other by a given distance, each

joint member 20 having a plurality of horizontal connection members 22 disposed on the positions corresponding to the horizontal support members 12 and 12' of the neighboring prefabricated wall units 10 and 10' in such a way as to be arranged misalignedly up and down to the horizontal support members 12 and 12', without having any interference with the horizontal support members 12 and 12', and a lightweight permanent form 23 coupled to the outer surfaces of the horizontal connection members 22.

The present invention relates to the prefabricated wall 1 that is capable of easily pre-coupling the lightweight permanent form 13 and 13' of the prefabricated wall units 10 and 10' and allowing the neighboring prefabricated wall units 10 and 10' to be joined to each other in a simple manner.

The prefabricated wall 1 is configured to allow the prefabricated wall units 10 and 10' to be connected transversely to each other.

Further, cast-in-place concrete is poured in the interior of the prefabricated wall unit 10 to construct a steel reinforced concrete (SRC) wall.

The prefabricated wall unit 10 includes the vertical support members 11 as the Γ -shaped section steel disposed on four rectangular corners thereof, the plurality of horizontal support members 12 for connecting the neighboring vertical support members 11 to each other in the horizontal direction, and the lightweight permanent form 13 coupled to the horizontal support members 12.

In specific, the vertical support members 11 are disposed on the four rectangular corners of the prefabricated wall unit 10.

The vertical support members 11 correspond to the shape of a member and are constituted of the 7-shaped section steel having high stiffness.

5 The horizontal support members 12 connect the neighboring vertical support members 11 to each other in the horizontal direction of the prefabricated wall 1.

The horizontal support members 12 connect the neighboring vertical support members 11 to each other on the front, rear, and both sides of the prefabricated wall unit 10.

10 The horizontal support members 12 disposed on the front and rear surfaces of the prefabricated wall unit 10 serve as horizontal reinforcement bars of the prefabricated wall.

The horizontal support members 12 are coupled to the legs of the vertical support members 11 as the 7-shaped
15 section steel by means of bolts or welding.

The horizontal support members 12 have through holes formed thereon to pass vertical reinforcement bars therethrough.

The horizontal support members 12 are spaced apart from
20 one another in a vertical direction of the prefabricated wall 1.

The lightweight permanent form 13 of the prefabricated wall units 10 is coupled to the horizontal support members 12 of the prefabricated wall unit 10.

25 The lightweight permanent form 13 is made by bending a thin plate and then coupled to the outsides of the horizontal support members 12.

The lightweight permanent form 13 is coupled integrally to the prefabricated wall unit 10, so that a process of
30 installing a form on a construction site may be avoided.

Moreover, the lightweight permanent form 13 is fixed to the vertical support members 11 through the horizontal support members 12 having strong stiffness, so that there are no additional temporary members for supporting the
5 lightweight permanent form 13.

Also, the horizontal support members 12 located at the insides of the lightweight permanent form 13 serve as the support frame of the lightweight permanent form 13, thereby economically minimizing the thickness of the lightweight
10 permanent form 13.

According to the present invention, the steel frames, the reinforcement bars, and the forms constituting the wall are prefabricated, and accordingly, a concrete casting process is just required on the construction site, thereby
15 reducing a construction period and providing lightweight members to thus have many advantages in the construction of a large-sized wall.

The prefabricated wall unit 10 is spaced apart from the other prefabricated wall unit 10' adjacent transversely
20 thereto by a given distance.

Accordingly, even though the horizontal support members 12 are coupled to the outsides of the vertical support members 11 on the ends of the prefabricated wall unit 10, they do not interfere with the horizontal support members 12'
25 of the neighboring prefabricated wall unit 10'.

The joint members 20 are located at the space between the neighboring prefabricated wall units 10 and 10' to connect the neighboring prefabricated wall units 10 and 10' to each other.

Each joint member 20 has the plurality of horizontal connection members 22 whose both ends are fixed to the vertical support members 11 and 11' of the prefabricated wall
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units 10 and 10' and the lightweight permanent form 23 coupled to the outsides of the plurality of horizontal connection members 22.

5 The joint members 20 have the lightweight permanent forms 23 having the same shape as the lightweight permanent form 13 and 13' of the prefabricated wall unit 10 and 10' and coupled to the front and rear surfaces of the prefabricated wall 1, and accordingly, the lightweight permanent forms 23 of the joint members 20 serve to block the space between the
10 neighboring prefabricated wall units 10 and 10'.

To allow the horizontal support members 12 as the horizontal reinforcement bars of the prefabricated wall unit 10 to be continuously provided to control the prefabricated wall, further, the horizontal support members 12 and 12' of
15 the neighboring prefabricated wall units 10 and 10' are connected to the horizontal connection members 22 of the joint members 20.

The horizontal connection members 22 of the joint members 20 may be disposed on the positions corresponding to
20 the horizontal support members 12 and 12' of the neighboring prefabricated wall units 10 and 10'.

The horizontal connection members 22 and the horizontal support members 12 are coupled to the left and right sides of the front surfaces of the vertical support members 11 of the
25 prefabricated wall unit 10. Of course, the horizontal connection members 22 and the horizontal support members 12 and 12' are coupled misalignedly up and down to the vertical support members 11 and 11' (See FIG. 3).

The horizontal connection members 22 serve to make the
30 horizontal support members 12 and 12' continuous thereto and to fixedly support the lightweight permanent form 23 of the joint member 20 thereagainst.

As the joint member 20 is configured to have the horizontal connection members 22 and the lightweight permanent form 23 formed integrally to each other, the joint member 20 is located between the neighboring prefabricated wall units 10 and 10' after the prefabricated wall units 10 and 10' have been installed on both sides of the joint member 20, and next, only the concrete casting is needed, thereby completing the construction of the prefabricated wall 1 in a simple manner.

FIG. 4 is a perspective view showing the lightweight permanent form of the joint member according to the present invention, FIG. 5 is a perspective view showing coupling relations between horizontal support members and a vertical support member according to the present invention, and FIGs. 6a and 6b are plan views showing coupling processes of the lightweight permanent form to the horizontal support member or the horizontal connection member.

As shown in FIGs. 4 to 6b, the lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20 include flat plates 131 and 231 adapted to build the outer surfaces of the prefabricated wall units, protrusions 132 and 232 having $\sqcap$ -shaped sections arranged in a plurality of columns in such a manner as to protrude from the inner surfaces of the flat plates 131 and 231 in longitudinal directions thereof, and each horizontal support member 12 and each horizontal connection member 22 are $\sqcap$ -shaped to allow one side leg 121 and 221 to be fixedly coupled to the vertical support members 11 and to allow the other side leg 122 and 222 to have $\sqcap$ -shaped locking holes 123 and 223 whose inlets are larger than widths of the protrusions 132 and 232 so as to insertedly lock the protrusions 132 and 232 thereinto.

As shown in FIG. 4, the lightweight permanent form 13 of the prefabricated wall unit 10 and each lightweight permanent form 23 of the joint member 20 include the flat plates 131 and 231 for providing the outer surfaces of the prefabricated wall unit 10 and the joint member 20 and the protrusions 132 and 232 having the $\sqcap$ -shaped sections in such a manner as to protrude from the inner surfaces of the flat plates 131 and 231 in the longitudinal directions of the prefabricated wall unit 10 and the joint member 20.

The protrusions 132 and 232 are arranged in the plurality of columns on both ends and the inner surfaces of the lightweight permanent form 13 of the prefabricated wall unit 10 and the lightweight permanent form 23 of the joint member 20.

Each horizontal support member 12 and each horizontal connection member 22 are $\sqcap$ -shaped to have one side leg 121 and 221 and the other side leg 122 and 222.

In specific, one side leg 121 and one side leg 221 are fixedly coupled to the vertical support members 11.

The other side leg 122 and the other side leg 222 have the $\sqcap$ -shaped locking holes 123 and 223.

The widths of the inlets of the locking holes 123 and 223 are larger than widths of the protrusions 132 and 232 so that the protrusions 132 and 232 are easily inserted into the locking holes 123 and 223.

The locking holes 123 and 223 are portions where the $\sqcap$ -shaped protrusions 132 and 232 of the lightweight permanent form 13 of the prefabricated wall unit 10 and the lightweight permanent form 23 of the joint member 20 are lockedly inserted.

The protrusions 132 and 232 inserted into the locking holes 123 and 223 are moved horizontally and lockedly

inserted into the locking holes 123 and 223, so that they do not escape from the locking holes 123 and 223.

The locking holes 123 and 223 are spaced apart from one another correspondingly to the positions of the protrusions 132 and 232 of the lightweight permanent form 13 of the prefabricated wall unit 10 and the lightweight permanent form 23 of the joint member 20 in the longitudinal directions of the horizontal support members 12 and the horizontal connection members 22.

10 The lightweight permanent form 13 of the prefabricated wall unit 10 is disposed on the plurality of horizontal support members 12 after the plurality of horizontal support members 12 has been coupled to the outer surfaces of the vertical support members 11.

15 If the lightweight permanent form 13 of the prefabricated wall unit 10 has a relatively long length, however, it is inconvenient to slidably move the lightweight permanent form 13 in the up and down directions of the locking holes 123 of the horizontal support members 12 and thus to couple the lightweight permanent form 13 of the prefabricated wall unit 10 to the horizontal support members 12.

20 Accordingly, the widths of the inlets of the locking holes 123 and 223 are larger than widths of the protrusions 132 and 232, so that the protrusions 132 and 232 are directly inserted into the front surfaces of the horizontal support members 12.

25 As a result, the lightweight permanent form 13 of the prefabricated wall unit 10 can be easily coupled to the front surface of the prefabricated wall 1.

30 In the same manner as above, the joint member 20 is configured to allow the widths of the locking holes 223

formed on the other side leg 222 of the horizontal connection members 22 to be larger than the widths of the protrusions 232 of the lightweight permanent form 23 thereof, so that the protrusions 232 are directly inserted into the front surfaces
5 of the horizontal connection members 22.

In specific, the coupling order between the horizontal support members 12 and the horizontal connection members 22 and the lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20 is as
10 follows.

First, as shown in FIG. 6a, the lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20 come into close contact with the front surfaces of the horizontal support members 12 and the
15 horizontal connection members 22 so as to allow the protrusions 132 and 232 of the lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20 to be inserted into the locking holes 123 and 223 of the horizontal support members 12 and the horizontal connection
20 members 22.

After that, as shown in FIG. 6b, the lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20 are slidingly moved in the horizontal directions thereof to thus allow the protrusions 132 and 232
25 to be lockedly inserted into the locking holes 123 and 223.

To prevent the lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20 from slidingly escaping from the horizontal support members 12 and the horizontal connection members 22 after their installation,
30 one or more points per one lightweight permanent form 13 of the prefabricated wall unit 10 and one light weight permanent form 23 of the joint member 20 are joined to one or more

points per one horizontal support member 12 and one horizontal connection members 22 by means of spot welding.

The lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20 have the same width as the horizontal support members 12 and the horizontal connection members 22.

The lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20 have the protrusions 132 and 232 protruding from both ends of the flat plates 131 and 231 in such a manner as to be overlaid on the protrusions 132 and 232 of the transversely neighboring lightweight permanent forms 13 and 23 of the prefabricated wall unit 10 and the joint member 20.

FIGs. 7a to 7c are plan views showing installing processes of the joint member according to the present invention, and FIG. 8 is a perspective view showing coupling relations of fastening bolts according to the present invention.

As shown in FIGs. 3 to 7c, each joint member 20 is fixed to the prefabricated wall units 10 and 10' by means of fastening bolts 24 that pass through the flat plate 231 of the lightweight permanent form 23 and one side leg 221 of the horizontal connection members 22 and are then fastened to the vertical support members 11 and 11' of the prefabricated wall units 10 and 10'.

In specific, installation processes of the joint member 20 will be explained with reference to FIGs. 7a to 7c.

First, as shown in FIG. 7a, the prefabricated wall units 10 and 10' are spaced apart from each other.

Next, as shown in FIG. 7b, the joint member 20 is located between the neighboring prefabricated wall units 10 and 10'.

In this case, the protrusion 232 protruding from one side end portion of the lightweight permanent form 23 of the joint member 20 comes into close contact with the inside of the protrusion 132 protruding from the end portion of the lightweight permanent form 13 coupled to one side prefabricated wall unit 10, and next, the other side end portion of the joint member 20 is rotated to come into close contact with the outside of the protrusion 132 protruding from the end portion of the lightweight permanent form 13' coupled to the other side prefabricated wall unit 10'.

After that, as shown in FIG. 7c, the joint member 20 is fixed to the prefabricated wall units 10 and 10' by means of the fastening bolts 24.

In this case, the fastening bolts 24 pass through the flat plate 231 of the lightweight permanent form 23 of the joint member 20 and one side leg 221 of the horizontal connection members 22 and are then fastened to the vertical support members 11 and 11' of the prefabricated wall units 10 and 10'.

As mentioned above, the joint members 20 serve to block the space between the prefabricated wall units 10 and 10', and accordingly, it is hard to fix the joint members 20 to the vertical support members 11 and 11' at the inside of the prefabricated wall 1.

To solve such a problem, according to the present invention, both ends of the joint member 20 can be fixed to the vertical support members 11 and 11' of the prefabricated wall units 10 and 10' by means of the fastening bolts 24 at the outside of the prefabricated wall 1.

In this case, fixing nuts 25 are pre-fixed, by means of welding, to the rear surfaces of the legs of the vertical support members 11 and 11' where the fastening bolts 24 pass

and are fastened, and accordingly, the fastening bolts 24 can be fastened by a worker at the outside of the joint member 20.

As shown in FIGs. 2, 7a to 7c, and 8, the joint member 20 has sleeves 26 disposed between fastening holes formed on the flat plate 231 of the lightweight permanent form 23 of the joint member 20 and fastening holes formed on one side leg 221 of the horizontal connection members 22.

If fastening forces are excessively applied to the fastening bolts 24 during the fastening processes of the fastening bolts 24, the lightweight permanent form 23 of the joint member 20 as the thin plate may be deformed.

Accordingly, the sleeves 26 are provided between the lightweight permanent form 23 and the horizontal connection members 22 to support the fastening bolts 24.

The sleeves 26 are disposed between the fastening holes formed on the flat plate 231 of the lightweight permanent form 23 and the fastening holes formed on one side leg 221 of the horizontal connection members 22 to thus pass the fastening bolts 24 therethrough.

The sleeves 26 serve to pressurize one side leg 221 of the horizontal connection members 22 thereagainst, while the fastening bolts 24 are being fastened, so that the fastening bolts 24 can be firmly fastened. Besides, the sleeves 26 serve to increase the shear friction force between the vertical support member 11 and the horizontal connection members 22 to effectively transfer the stress of the horizontal connection members 22 to the vertical support member 11.

In this case, both ends of each sleeve 26 are fixed to the inside of the flat plate 231 of the lightweight permanent form 23 and one side leg 221 of each horizontal connection member 22 by means of welding.

【Industrial Applicability】

According to the present invention, the prefabricated wall is configured to allow the joint members to be disposed between the neighboring prefabricated wall units to connect
5 the neighboring prefabricated wall units to each other, thereby allowing the neighboring prefabricated wall units to be easily joined to each other in a simple manner and achieving efficient construction.

【CLAIMS】**【Claim 1】**

A prefabricated wall (1) having a plurality of prefabricated wall units (10 and 10') connected transversely to each other, each prefabricated wall unit comprising vertical support members (11) as $\cap$ -shaped section steel disposed on four rectangular corners thereof, a plurality of horizontal support members (12) for connecting the neighboring vertical support members (11) to each other in a horizontal direction thereof, and a lightweight permanent form (13) coupled to the horizontal support members (12), the prefabricated wall (1) comprising joint members (20) disposed on both sides of the neighboring prefabricated wall units (10 and 10') spaced apart from each other by a given distance, each joint member (20) being adapted to allow both ends thereof to be fixed to the vertical support members (11) of the neighboring prefabricated wall units (10 and 10') and comprising a plurality of horizontal connection members (22) disposed on the positions corresponding to the horizontal support members (12 and 12') of the neighboring prefabricated wall units (10 and 10') in such a way as to be arranged misalignedly up and down to the horizontal support members (12 and 12'), without having any interference with the horizontal support members (12 and 12'), and a lightweight permanent form (23) coupled to the outer surfaces of the horizontal connection members (22),

wherein the lightweight permanent form (13) of the prefabricated wall units (10 and 10') and the lightweight permanent form (23) of each joint member (20) comprise flat plates (131 and 231) adapted to build the outer surfaces of the prefabricated wall units and protrusions (132 and 232)

having $\sqsupset$ -shaped sections arranged in a plurality of columns in such a manner as to protrude from the inner surfaces of the flat plates (131 and 231) in longitudinal directions thereof; each horizontal support member (12) and each
5 horizontal connection member (22) are $\sqsupset$ -shaped to allow one side leg (121 and 221) to be fixedly coupled to the vertical support members (11) and to allow the other side leg (122 and 222) to have $\sqsupset$ -shaped locking holes (123 and 223) whose inlets are larger than widths of the protrusions (132 and
10 232) so as to insertedly lock the protrusions (132 and 232) thereinto; in a state where the protrusion (232) protruding from one side end portion of the lightweight permanent form (23) of the joint member (20) comes into close contact with the inner surface of the protrusion (132) protruding from the
15 end portion of the lightweight permanent form (13) coupled to one side prefabricated wall unit (10), the other side end portion of the joint member (20) is rotated to allow the protrusion (232) protruding from the other side end portion of the lightweight permanent form (23) of the joint member
20 (20) to come into close contact with the outer surface of the protrusion (132) protruding from the end portion of the lightweight permanent form (13') coupled to the other side prefabricated wall unit (10'); and each joint member (20) is fixed to the prefabricated wall units (10 and 10') by means
25 of fastening bolts (24) that pass through the flat plate (231) of the lightweight permanent form (23) and one side leg (221) of the horizontal connection members (22) and are then fastened to the vertical support members (11 and 11') of the prefabricated wall units (10 and 10').

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【Claim 2】

The prefabricated wall according to claim 1, wherein each joint member (20) comprises sleeves (26) disposed between fastening holes formed on the flat plate (231) of the lightweight permanent form (23) and fastening holes formed on
5 one side leg (221) of the horizontal connection members (22).