Amended Claims

1. A prefabricated frame, comprising a column (1), a main beam (2) connected to the column (1), a secondary beam (3) connected to the main beam (2), and a floor (5),

wherein the main beam (2) and the secondary beam (3) both are prefabricated members, and are provided with, on respective top portions thereof, exposed reinforcing bars, and reinforcing bars at cast-in-situ parts,

wherein the floor (5) is a laminated plate, with a prefabricated slab (51) arranged at a lower portion thereof,

wherein the prefabricated slab (51), the main beam (2), and the secondary beam (3) are connected together by means of cast-in-situ concrete on the respective top portions thereof,

wherein the main beam (2) is provided, on the top portion thereof, with a recess opening to its two end faces,

wherein width of two end portions of the main beam (2) is greater than or equal to that of a middle portion of the main beam (2),

wherein depth of the recess at the two end portions of the main beam (2) is greater than depth of the recess at the middle portion of the main beam (2), and

wherein the reinforcing bar at the cast-in-situ part of the main beam (2) is located at the recess on the top portion thereof.

2. The prefabricated frame according to claim 1, wherein the secondary beam (3) is provided, on the top portion thereof, with a recess opening to its two end faces,

wherein width of two end portions of the secondary beam (3) is greater than or equal to that of a middle portion of the secondary beam (3),

wherein depth of the recess at the two end portions of the secondary beam (3) is greater than depth of the recess at the middle portion of the secondary beam (3), and

wherein the reinforcing bar at the cast-in-situ part of the secondary beam (3) is located at the recess on the top portion thereof.

3. The prefabricated frame according to claim 2, a reinforcing bar connector is provided at a junction between the main beam (2) and each of secondary beams (3)

located at left and right sides of the main beam (2), and connects a reinforcing bar provided inside of the main beam (2) to the reinforcing bar provided at the cast-in-situ parts of the end portion of each of the secondary beams (3) that are connected to the main beam (2),

wherein a connecting reinforcing bar is provided at a top portion of the cast-in-situ part at the end portion of the secondary beam (3) located at one side of the main beam (2), and passes through the main beam (2) and extends to the secondary beam (3) located at the other side of the main beam (2), and

wherein the connecting reinforcing bar partially overlaps, through its two end portions, the reinforcing bars provided at the top portions of the cast-in-situ parts of the secondary beams (3) located at the left and right sides of the main beam (2) respectively, the end portion of the secondary beam (3) being provided with a stirrup connecting the reinforcing bar at a prefabricated part and the reinforcing bar at the cast-in-situ part thereof.

4. The prefabricated frame according to claim 2, wherein at a connecting node between the main beam (2) and the column (1), connecting reinforcing bars are provided at both an upper portion and a lower portion of the cast-in-situ part at the end portion of the main beam (2), and extend inside of the column (1) with a bent end, and

wherein the end portion of the main beam (2) is provided with a stirrup connecting the reinforcing bar at a prefabricated part and the reinforcing bar at the cast-in-situ part thereof.

5. The prefabricated frame according to claim 2, wherein at connecting nodes between the column (1) and main beams (2) located at left and right side of the column (1), connecting reinforcing bars are provided at both an upper portion and a lower portion of the cast-in-situ part at the end portion of the main beam (2) located at one side of the column (1), pass through the column (1), and extend to the main beam (2) located at the other side of the column (1), and

wherein two end portions of the connecting reinforcing bar of the upper portion partially overlap the reinforcing bars provided at the top potions of the cast-in-situ parts of the main beams (2) located left and right sides of the column (1) respectively, the end portions of the main beams (2) located at the left and right sides of the column

(1) being provided with respective stirrups for connecting the reinforcing bars at a prefabricated part with the reinforcing bars at the cast-in-situ part thereof.

6. A construction method using the prefabricated frame according to any one of claims 1 to 5, comprising the following steps:

step A): prefabricating the main beam (2), the secondary beam (3), and the prefabricated slab (51) according to design requirements, wherein exposed reinforcing bars are provided for all of the main beam (2), the secondary beam (3), and the prefabricated slab (51) as reserved members, and the top portions of the main beam (2) and the secondary beam (3) are provided in advance with recesses opening to respective end faces, the reinforcing bars at the cast-in-situ parts of the main beam (2) and the secondary beam (3) being arranged in the recesses at the top portions thereof and temporarily fixed;

step B): performing cast-in-situ construction of the column on site;

step C): mounting temporary support scaffolds for respective prefabricated members on site, and lifting prefabricated main beam (2), secondary beam (3), and prefabricated slab (51) in place;

step D): moving or inserting, after the prefabricated main beam (2), secondary beam (3), and prefabricated slab (51) are lifted in place, the reinforcing bars at the cast-in-situ parts provided in the recesses of the main beam (2) and secondary beam (3) into designed positions, wherein the reinforcing bars are bound in series and connected to the prefabricated member or column associated therewith; and

step E): casting concrete in situ on the main beam (2), the secondary beam (3), and the prefabricated slab (51) that are bound with the reinforcing bars to connect the three together, wherein the concrete is also cast into the recesses on the top portions of the main beam (2) and the secondary beam (3).

7. The construction method according to claim 6 using the prefabricated frame according to claim 3, wherein, in step A), the reinforcing bar connector connecting to the reinforcing bar provided inside the main beam is pre-arranged at the junction between the main beam (2) and the secondary beam (3), and the secondary beam (3), at the prefabricated part of the end portion thereof, is provided with exposed stirrups connecting to the reinforcing bar at the cast-in-situ part thereof, while at the recess thereof, is placed with the connecting reinforcing bar which is temporarily fixed; and

wherein in step D), the reinforcing bar provided at the cast-in-situ part of the end portion of the secondary beam (3) is connected to the reinforcing bar connector, and the connecting reinforcing bar in the recess of the secondary beam (3) located at one side of the main beam (2) is moved to pass through the main beam (2) and extend to the secondary beam (3) located at the other side of the main beam (2), with the two end portions of the connecting reinforcing bar partially overlapping the reinforcing bars provided at the top portions of the cast-in-site parts of the secondary beams (3) located at the left and right sides of the main beam (2), respectively.

8. The construction method according to claim 6 or 7 using the prefabricated frame according to claim 4, wherein, in step A), the exposed stirrups are provided at the prefabricated part of the end portion of the main beam (2) and connected to the reinforcing bars provided at the cast-in-situ part thereof, and pre-bent upper and lower connecting reinforcing bars are provided at the recess of the main beam (2), and are temporarily fixed; and

wherein in step D), at the connecting node between the main beam (2) and the column (1), the upper and lower connecting reinforcing bars provided in the recess of the main beam (2) are disposed such that bending portion of the upper and lower connecting reinforcing bars extend into the column (1).

9. The construction method according to claim 6 or 7 using the prefabricated frame according to claim 5, wherein, in step A), the exposed stirrups are provided at the prefabricated part of the end portion of the main beam (2) and connected to the reinforcing bar provided at the cast-in-situ part thereof, and the upper and lower connecting reinforcing bars are provided at the recess of the main beam (2), and are temporarily fixed; and

wherein in step D), at the connecting nodes between the column (1) and the main beams (2) located at the left and right sides of the column (1), the upper and lower connecting reinforcing bars placed at the recess of the main beam (2) are moved to pass through the column (1) and extend to the main beam (2) located at the other side of the column (1), and the two end portions of the upper and lower connecting reinforcing bars partially overlap the upper and lower reinforcing bars provided at the cast-in-situ parts of the main beams (2) located at the left and right sides of the column (1), respectively.