Claims

1. A building system for erecting a building structure, the building system comprising:

a plurality of precast transportable concrete wall panels; each wall panel comprising a reinforcement structure and a plurality of cast-in connecting inserts, each connecting insert being located at a predetermined position;

a precast transportable concrete floor panel, the floor panel also comprising a reinforcement structure and a plurality of cast-in connecting inserts, each being located at a pre-determined position, the floor panel further comprising a recess along at least a portion of a perimeter of the floor panel; and

a precast transportable concrete roof panel that comprises a reinforcement structure and a plurality of cast-in connecting inserts for connecting the roof panel to the wall panels, each connecting insert being located at a predetermined position;

wherein the building system is configured such that when each precast wall panel is positioned in a substantially upright position in the recess of the floor panel and the roof is positioned on top portions of the plurality of wall panels, connecting inserts of two adjacent panels align so that the two adjacent panels can be connected using a plurality of mechanical fasteners,

wherein the roof panel comprises a recessed area that is configured such that a projecting flange is formed extending on each side and along a perimeter of the roof panel such that when the recessed area of the roof panel is supported on the top portions of the plurality of wall panels, the projecting flange extends along and parallel to an external surface of the wall panels, and

wherein when the building structure is erected, an external surface of the roof panel is inclined thereby forming a slope, an angle of the slope being defined by an angle of the projecting flange relative to the external surface of the roof panel.

2. The building system of claim 1, wherein the recess of the floor panel has a width that is substantially identical to a width of the connecting wall panel.

3. The building system of claim 1 or 2, wherein connecting inserts of the floor panel and the plurality of wall panels are in the form of threaded inserts having a closed end.

4. The building system of claim 3, comprising a plurality of connecting brackets wherein the building system is configured such that when each precast wall panel is positioned in a substantially upright position in the recess of the floor panel, threaded inserts of two adjacent panels align with a connecting bracket to be fastened to the panels using a plurality of mechanical fasteners.

5. The building system of claim 4, wherein the plurality of connecting brackets are identical.

6. The building system of any one of the preceding claims, wherein a plurality of connecting inserts of the floor panel and/or a wall panel are in the form of apertures extending through the panel, wherein the building system is configured such that when each precast wall panel is positioned in a substantially upright position in the recess of the floor panel, an aperture of a first panel aligned with a threaded insert having a closed end of an adjacent second panel so that the first and second panels can be connected using a plurality of mechanical fasteners.

7. The building system of any one of the preceding claims, wherein the precast concrete floor panel comprises one or more recessed areas and one or more structural ribs arranged to extend through the one or more recessed areas.

8. The building system of any one of claims 1 to 7, wherein the pre-cast concrete roof panel comprises one or more recessed areas and one or more structural ribs extending through the one or more recessed areas.

9. The building system of any one of claims 1 to 8, wherein each of the plurality of cast-in inserts of the roof panel has a closed end and is positioned at an internal surface of the roof panel when the building structure is erected.

10. The building system of any one of claims 1 to 9, wherein the roof panel comprises a first end that forms a lower end of the roof panel, and a second end opposite to the first end that forms a higher end of the roof panel when the building structure is erected, wherein a wall panel supporting the first end of the roof panel is shorter in height than a wall panel supporting the second end of the roof panel.

11. A method of making a building system for erecting a building structure, the method comprising the steps of:

providing a casting bed configured to fabricate a transportable concrete wall panel;

positioning a reinforcement structure in the casting bed;

positioning a plurality of connecting inserts relative to the casting bed such that when the wall panel is cast, each of the connecting inserts is located at a predetermined position within the wall panel;

pouring concrete into the casting bed to cast the wall panel;

repeating the foregoing steps to provide a plurality of precast concrete wall panels for the building structure;

providing a casting bed configured to fabricate a transportable concrete floor panel, the casting bed comprising at least one displacement element for defining a recess along at least a portion of a perimeter of the casted floor panel;

positioning a reinforcement structure in the casting bed;

positioning a plurality of connecting inserts relative to the casting bed such that when the floor panel is cast, each of the connecting inserts is located at a predetermined position within the floor panel; and

pouring concrete into the casting bed to cast the floor panel;

providing a casting bed configured to fabricate a transportable concrete roof panel;

positioning a reinforcement structure in the casting bed;

positioning a plurality of connecting inserts relative to the casting bed such that when the roof panel is cast, each of the connecting inserts is located at a predetermined position within the roof panel;

providing at least one displacement element for attaching to the casting bed to define one or more recessed areas within the roof panel thereby forming a projecting flange along the perimeter of the roof panel;

providing a first displacement element and attaching the first displacement element to a first side of the casting bed configured to fabricate the concrete roof panel;

providing a second displacement element and attaching the second displacement element to a second side portion of the casting bed configured to fabricate the concrete roof panel, the second side being opposite of the first side

wherein the method is conducted such that the first and second displacement elements modify an angle of the sides of the roof panel thereby defining a slope of the roof panel when the building structure is erected; and

pouring concrete into the casting bed to cast the roof panel

wherein the method is conducted such that each precast wall panel can be positioned in a substantially upright position in the recess of the floor panel and when the building structure is erected, cast-in connecting inserts of two adjacent panels align so that the panels can be connected to each other using a plurality of mechanical fasteners.

12. The method of claim 11, comprising:

providing at least one support structure for positioning the plurality of connecting inserts at the respective predetermined positions within the casted panel,

attaching one or more of the plurality of connecting inserts to the at least one support structure, and

attaching the at least one support structure to the casting bed so that the connecting inserts are cast-in at the predetermined positions.

13. The method of claim 11 or 12, comprising providing and attaching at least one further displacement element to the casting bed to define one or more recessed areas within the floor panel.

14. A method of assembling the building system as defined in any one of claims 1 to 10, the method comprising:

positioning the precast concrete floor panel;

positioning a precast concrete wall panel in the recess of the floor panel such that the wall panel extends in a substantially upright position;

providing a temporary support element to support the wall panel in the substantially upright position;

connecting the wall panel to the floor panel by fastening one or more mechanical fasteners to the aligned connecting inserts of adjacent panels;

repeating the forgoing steps for the plurality of wall panels; and

removing the temporary support elements.

15. The method of claim 14, further comprising providing the precast concrete roof panel, positioning the roof panel on the plurality of wall panels, and connecting the roof panel to the plurality of walls by fastening a plurality of mechanical fasteners to the aligned connecting inserts.