CLAIMS

1. A prefabricated prefinished volumetric construction (PPVC) module manufactured off-site, the PPVC module having at least one component for joining another PPVC module on-site, the at least one component comprising

a coupling interface for joining the another PPVC module, the coupling interface comprises at least one mating groove shaped and dimensioned to couple with the another PPVC module, the at least one mating groove comprises a plurality of metal elements arranged to provide structural reinforcement to the PPVC module and reduce the amount of casting material to be in-filled on-site; wherein when joined, each of the plurality of metal elements is secured with a corresponding metal element of the another PPVC module.

2. The PPVC module according to claim 1, wherein the at least one component includes a column component.

3. The PPVC module according to claim 2, wherein the at least one mating groove comprises a plurality of connector loop boxes disposed at various positions along the mating groove.

4. The PPVC module according to claim 3, wherein each of the plurality of connector loop boxes comprises a steel wire rope arranged to protrude from the base of the mating groove to form loops having planes substantially perpendicular to the plane of the base of the mating groove.

5. The PPVC module according to claim 4, wherein when the column component is mated with another column component, the mated grooves define a first channel, and a second channel, wherein the first channel and the second channel are each adapted to receive a reinforcement bar.

6. The PPVC module according to any one of the preceding claims, comprising at least one edge surface having a plurality of steel brackets disposed at regular intervals along the edge surface.

7. The PPVC module according to claim 6, further comprising a plurality of protruding rods precast and protruding from the edge surface, wherein each protruding rod is shaped and dimensioned to receive a steel plate and/or a spiral connector.

8. The PPVC module according to claim 1, wherein the at least one PPVC component includes a beam component.

9. The PPVC module according to claim 8, wherein the at least one mating groove of the beam component comprises an L-shaped ledge formed for mating with a corresponding beam component.

10. The PPVC module according to claim 9, wherein when mated, the two L-shaped ledges define a U-shaped channel.

11. The PPVC module according to claim 10, further comprises one or more steel elements arranged to extend from an inner surface of the U-shaped channel to the base of the U-shape channel.

12. The PPVC module according to claim 11, further comprises a plurality of protrusions for interfacing with the another PPVC module.

13. The PPVC module according to claim 1, wherein the at least one component is a slab component.

14. The PPVC module according to claim 13, wherein the at least one mating groove comprises a depressed region/recess located proximate an edge of the slab component.

15. A method of connecting a first prefabricated prefinished volumetric construction (PPVC) module with a second PPVC module, each of the first and second PPVC module having at least one mating groove, comprising the steps of:

(a) manufacturing the first PPVC module and the second PPVC module off-site;

(b) positioning a first coupling interface of the first PPVC module adjoining a second coupling interface of the second PPVC module;

(c) aligning the mating grooves such that the mating grooves of the first PPVC module and second PPVC module defines a channel;

(d) positioning at least one metal element across the channel to join the first PPVC module to the second PPVC module; and

filling the channel with a casting material; wherein the steps (b), (c) and (d) are performed on-site.