[0013] In one form, wherein wet concrete is poured into all of the trays and then allowed to cure. In another form, wet concrete is poured into some of the trays, which some trays are allowed to cure, and then wet concrete is poured into the remainder of the trays, and which remainder are allowed to cure. In a further form, wet concrete is poured into the trays progressively, which trays are progressively allowed to cure.

[0014] The trays are preferably tensioned before being constructed into the frame so as to deform the trays, whereafter the filling of the trays with concrete flattens the trays and induces post tensioning strengthening therein.

[0015] Bracing is preferably attached the exterior of the modular building.

[0016] There is also provided a tray-like modular building component adapted for filling with concrete after assembly with like components into a building frame, the component including:

a substantially rectangular frame with a pair of opposed sides and a pair of opposed ends defining an interior therebetween;

a sheet mounted to the frame and extending over the interior;

a pair of beams, each mounted to the frame along each one of the pair of sides respectively; and

a pair of end plates, each mounted to the frame along each one of the pair of ends respectively, wherein the sheet, the beams and the end plates together form an open-topped tray for receiving the concrete therein.

[0017] The tray-like modular building component preferably further includes a pair of tensioners, each mounted to and along each one of the pair of beams respectively, wherein the tensioners are adapted for tensioning the beams so as to deform the beams and the sheet.

[0018] The tray-like modular building component preferably further includes a plurality of deflector plates placed along each side beam, each deflector plate configured to allow the tensioner to pass therethrough, whereby tensioning of the tensioners engages the deflector plates and deforms the beams.

[0019] The tensioner is preferably pre-tensioned utilising a barrel and wedge assembly.

[0020] The tray-like modular building component preferably further includes a reinforcing mesh part mounted to the frame above the interior.

[0021] There is also provided a method of constructing a tray-like modular building component adapted for filling with concrete after assembly with like components into a building frame, the method including the following steps:

assembling a substantially rectangular frame with a pair of opposed sides and a pair of opposed ends defining an interior therebetween;

mounting a sheet to the frame which extends over the interior;

mounting a pair of beams to the frame, each along each one of the pair of sides respectively;

mounting a pair of end plates to the frame, each along each one of the pair of ends respectively; and

forming an open-topped tray for receiving the concrete therein from the sheet, the beams and the end plates.

[0022] The method preferably further includes:

mounting a pair of tensioners to the beams, each to and along each one of the pair of beams respectively; and

tensioning the beams by adjusting the tensioners and thereby deforming the beams and the sheet.

[0023] The method preferably further includes placing a plurality of deflector plates along each side beam, each deflector plate configured to allow the tensioner to pass therethrough, whereby tensioning of the tensioners engages the deflector plates and deforms the beams.

[0024] The tensioner is preferably pre-tensioned utilising a barrel and wedge assembly.

[0025] The method further includes mounting a reinforcing mesh part to the frame above the interior.

[0026] There is also provided a modular building column assembly adapted for filling with concrete after assembly with like components into a building frame, the column assembly including:

a column part with an open top end, an open bottom end and a hollow interior

CLAIMS

1. A method of constructing a modular building, the method including the following sequential steps:

constructing a multi-floor building frame by connecting a plurality of like open topped-trays and column assemblies, with the trays forming floors and the column assemblies separating the floors;

assembling walls or walls formwork to the frame; and

pouring wet concrete into the trays to form the building.

2. The method of constructing a modular building of claim 1, wherein the column assemblies are hollow and the wet concrete is also poured therethrough.

3. The method of constructing a modular building of claim 1 or 2, wherein the walls formwork are hollow and the wet concrete is also poured therethrough.

4. The method of constructing a modular building of claim 1, 2, or 3, wherein a roof structure is assembled to the frame.

5. The method of constructing a modular building of claim 4, wherein the roof structure is assembled to the frame prior to the pouring of the wet concrete.

6. The method of constructing a modular building of any one of claims 1 to 5, wherein wet concrete is poured into all of the trays and then allowed to cure.

7. The method of constructing a modular building of any one of claims 1 to 5, wherein wet concrete is poured into some of the trays, which some trays are allowed to cure, and then wet concrete is poured into the remainder of the trays, and which remainder are allowed to cure.

8. The method of constructing a modular building of any one of claims 1 to 5, wherein wet concrete is poured into the trays progressively, which trays are progressively allowed to cure.

9. The method of constructing a modular building of any one of claims 1 to 8, wherein the trays are tensioned before being constructed into the frame so as to deform the trays, whereafter

the filling of the trays with concrete flattens the trays and induces post tensioning strengthening therein.

10. The method of constructing a modular building of any one of claims 1 to 9, wherein bracing is attached the exterior of the modular building.