Claims

1. Method for additive manufacturing by extrusion of an anisotropic fibrous concrete, comprising using a device comprising a multi-axis robot (1) having a head (3) bearing an extrusion assembly (5) including an extrusion nozzle (23), wherein the method comprises ~~for~~ extruding a bead of mortar (31) jointly with continuous fibres (9) oriented along the longitudinal direction of this bead, the device comprising ~~and~~ means for the injection in the mortar (31) of a setting accelerator additive (34), wherein the method comprises injecting the setting accelerator additive (34) into the mortar (31), wherein the method comprises adjusting the nature of the mortar (31), the accelerator additive (34), and the flow rate of the mortar (31), so that the injection of the setting accelerator additive (39) causes ~~causing~~ an at least sixfold multiplication of the shear threshold of the mortar (31) between the region of injection of the setting accelerator additive (39) and the end (29) of the nozzle (23).

2. Method according to claim 1, wherein the extrusion assembly (5) comprises a mortar mixer (17) situated upstream of the extrusion nozzle (23).

3. Method according to claim 2, wherein said extrusion assembly (5) comprises a constriction area (21) situated between said mixer (17) and said extrusion nozzle (23).

4. Method according to claim 3, wherein the means for injecting the set accelerating additive (34) comprise an injection head (39) which is situated between the mixer (17) and the constriction area (21) for injecting the setting accelerator additive (34).

5. Method according to claim 1, wherein said extrusion nozzle (23) comprises radial bridges (33) provided with orifices (27) for introducing said fibres (9).

6. Method according to claim 1, wherein said extrusion nozzle (23) comprises peripheral orifices (27) for introducing said fibres (9).

7. Method according to claim 1, comprising a magazine (13) of coils (11) on which said fibres (9) are wound, and members for guiding (15a, 15b, 15c) said fibres (9) from said coils (11) to said extrusion nozzle (23).

8. Method according to claim 2, comprising the provision of a system for supplying and pumping (7) said mortar (31) to said mixer (17).

9. Method according to claim 1, wherein it is the adherence of the fibres (9) with the mortar (31) that drives these fibres into the bead.

10. Method according to claim 1, wherein said fibres (9) are subjected to a surface treatment and/or to a mechanical treatment before extrusion with said mortar (31).

11. Method according to claim 1, wherein flexurally flexible fibres (9) are used that are introduced into the heart of said mortar (31).

12. Method according to claim 1, wherein flexurally rigid fibres (9) are used that are introduced into the periphery of said mortar (31).

13. Method according to claim 1, wherein said fibres (9) are chosen from the group comprising fibres made of carbon, metal, glass, basalt, polymer, unitary or stranded.