Claims

1. A system for implementing a manufacturing method of construction elements (10) comprising hydraulic binder and aggregates, said system comprising:

- a mixing device (40) adapted to mix a dry mortar composition comprising hydraulic binders and aggregates with water, to form a wet mortar,
- an outlet (20),
- a pumping device (50) adapted to pump and convey said wet mortar towards said outlet (20), ~~and~~
- at least one sensor (30) adapted to measure on-line at least two physical properties of said wet mortar on its way from said mixing device to said outlet, said physical properties including viscosity and at least one of flow and density, and
- a first controller (60) configured to adjust the ratio between the water and the dry mortar depending on the value of at least one of said at least two physical properties,

wherein the manufacturing method is a 3-D printing method, said system further comprising a computer-controlled printer having a head comprising said outlet (20), which is adapted to deposit a layer of mortar (11) on a previous layer of mortar (12).

2. The system according to Claim 1, further comprising a computer-readable storage media configured to store said at least two physical properties of the wet mortar.

3. The system according to any of Claims 1 and 2, wherein the sensor (30) is able to simultaneously measure the viscosity and at least one of flow and density of the wet mortar.

4. The system according to Claim 3, wherein the sensor (30) is of the Coriolis type.

5. The system according to Claim 4, wherein the Coriolis type sensor (30) comprises a measuring tube configured to conduct the wet mortar and simultaneously measure the density, the flow, the viscosity and the temperature of the wet mortar.

6. The system according to Claim 5, wherein the Coriolis type sensor comprises exactly one measuring tube.

~~7. The system according to any of Claims 1 to 6, further comprising a first controller (60) configured to adjust the ratio between the water and the dry mortar depending on the value of at least one of said at least two physical properties.~~

~~8.~~7. The system according to Claims ~~7~~1 to 6, further comprising a water supply (71) and means (72) for adjusting the dosage of mixing water, wherein the first controller (60) is configured to control said means (72) for adjusting the dosage of mixing water.

~~9.~~8. The system of Claim ~~8~~7, wherein the means (72) for adjusting the dosage of mixing water comprise a valve and a flowmeter.

~~10. The system according to any one of the preceding Claims, wherein the manufacturing method is a 3-D printing method, said system further comprising a computer-controlled printer having a head comprising said outlet (20), which is adapted to deposit a layer of mortar (11) on a previous layer of mortar (12).~~

~~11.~~9. The system according to any one of the preceding Claims ~~10~~, further comprising the following additional devices:

- a second controller (21) configured to control the printer,

- a central main controller (90) configured to control at least one from the first (60) and second (21) controllers.

~~12.~~10. The system of any of Claims ~~7~~ 1 to ~~11~~9, wherein the first controller (60) is configured to control the pumping device (50).

~~13.~~11. The system according to any of Claims ~~7~~ 1 to ~~12~~10, wherein at least some, preferably all, controllers (60, 21, 90, 100) are programmable logic controllers.

~~14.~~12. The system according to any of the preceding Claims, further comprising a dry mortar storage (80) and a dosing device.