

3D Printing of Concrete

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Concrete is normally placed into formwork and then vibrated to fabricate building components. Two alternative construction strategies - self-compacting and sprayed concretes - have been developed to eliminate the compaction process. Concrete printing is an innovative construction process for fabricating concrete components employing an additive, layer-based, manufacturing technique, also called freeform construction. This method can be used to build complex geometrical shapes without formwork, and thus has a unique advantage over conventional construction methods. 3D Concrete printing aims at enhancing construction on several levels: it minimizes the duration of the construction process by eliminating some time-consuming processes in the traditional method, it reduces costs incurred on the project by minimizing waste and overproduction in addition to minimizing the use of labor, it provides flexibility in building structural shapes that aren't possible to build conventionally, and delivers an improvement in the overall safety and environmental impact of the structure.