

Research Activities about 3D concrete printing in Japanese Academic Associations

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The development and practical implementation of 3D concrete printing technology (3DCP) are progressing globally. In Japan, discussions commenced with the establishment of the "FS Committee on the Application of 3D Printing to Concrete Structures" at the Japan Concrete Institute in April 2018. From April 2019, a "Research Committee on the Construction of Concrete Structures by 3D Printing" was formed, outlining considerations for common examinations, and providing a roadmap for societal implementation.

Starting in June 2021, the Civil Engineering Society formed the "Research Subcommittee on the Application of 3D Printing Technology to Civil Structures," which engaged in discussions on the challenges and prospects of applying 3DCP to civil structures. Furthermore, insights were gained by utilizing a 3D printer to manufacture benches for the newly constructed Futomi Station on the JR Uchibo Line, going through processes such as planning, design, construction, quality assurance, and maintenance management, similar to conventional structures, resulting in valuable observations for implementation.

From September 2023, attention has been narrowed down to the application of 3DCP to buried type formwork, which has numerous practical examples in Japan. The "Research Subcommittee on the Design and Construction of Buried Type Formwork by Construction 3D Printers" has been established, and it is actively progressing towards consolidating insights necessary for constructing buried type formwork with assured quality using 3D printing technology, with the aim of developing guidelines.



3DCP bench installed at Futomi Station