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Design and Production of Thin-Walled UHPFRC Footbridge

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Abstract : The paper presents design and production of thin-walled U-profile footbridge made of UHPFRC. The main structure of the bridge is one prefabricated shell structure made of UHPFRC with dispersed steel fibers without any conventional reinforcement. The span of the bridge structure is 10 m and the clear width of 1.5 m. The thickness of the UHPFRC shell structure oscillated in an interval of 30-45 mm. Several calculations were made during the bridge design and compared with the experiments. For the purpose of verifying the calculations, a segment of 1.5 m was first produced, followed by the whole footbridge for testing. After the load tests were done, the design was optimized to cast the final footbridge.

Keywords : footbridge, non-linear analysis, shell structure, UHPFRC, Ultra-High Performance Fibre Reinforced Concrete
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