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Structural performance of ultra-high-performance concrete beams with different steel fibers
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ABSTRACT
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Article
Shear Strengthening of High Strength Concrete Beams That Contain Hooked-End Steel Fiber
Hyun-Do Yun, Gwon-Young Jeong and Won-Chang Choi
Abstract: Steel fiber has been used successfully in concrete mixtures to control volumetric changes, including shrinkage. However, the feasibility of the use of steel fiber has been restricted to non-structural constructions, such as 'slab on ground'. Recently, researchers have attempted to expand the applications of steel fiber to replace structural reinforcement (rebar) and have shown promising results in its substitution for shear reinforcement. Few studies have been conducted to ensure the feasibility of using steel fiber in structural components, however. This experimental study was designed to investigate the shear performance of steel fiber-reinforced concrete beams using the tensile strength of steel fiber and the shear span-to-depth ratio as variables. The experimental results indicate that the tensile strength of steel fiber significantly affects the shear strength of steel fiber-reinforced concrete beams, regardless of the shear span-to-depth ratio, and that steel fiber can play a role in shear reinforcement of concrete beams.
Keywords: shear; hooked-end steel fiber; span to depth ratio; ductility
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Hamed Dabiri, Khashayar Rahimzadeh, Ali Kheyroddin
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