Report on Design and Construction of Steel Fiber-Reinforced Concrete Elevated Slabs

Reported by ACI Committee 544
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Construction of slabs in areas with weak soil conditions has been successfully used to address the structural design of these slabs. Based on the knowledge gained, the area has been extended to a construction practice for slabs supported by columns as well. Applications are further extended to multi-story building applications. This report addresses the methodology for analysis, design, and construction of steel FRC (SFRC) slabs supported on piles or columns (also called elevated SFRC [E-SFRC]).

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Methods of construction, curing, and full-scale testing of slabs are also presented. A high dosage of deformed steel fibers (85 to 170...
Steel fibers have been used for over 50 years as reinforcement in many applications, such as heavily reinforced sections, shear-critical regions, slabs-on-ground, and pavements. A potential area of use of steel fibers is in the construction of slabs in areas with weak soil conditions where adverse effects due to soil-structure interaction, such as differential settlement, cracking, or long-term serviceability problems, can be treated by considering the fiber reinforcement effectiveness. In these cases, pile-supported slab structural designs have been commonly used and fiber reinforcement has shown tremendous promise. The pile-supported continuous slabs are used in factories (industrial facilities), warehouses, and basements.