

Guide to Fiber-Reinforced Shotcrete

Reported by ACI Committee 506



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Guide to Fiber-Reinforced Shotcrete

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Guide to Fiber-Reinforced Shotcrete

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This guide describes the technology and applications of fiber-reinforced shotcrete (FRS) using synthetic and steel fibers. Mechanical properties, particularly toughness, impact, and flexural strength, are improved by fiber addition, and these improvements are described along with other typical properties and benefits, such as control of shrinkage cracking. Proportions of typical mixtures, batching, mixing, and application procedures are described, including methods of reducing rebound and equipment used to apply FRS. Applications of FRS are described, including rock-slope stabilization work, construction and repair of tunnel and mining linings, fire explosive spalling-resistant linings, channel linings, pools and rockscapes, and structure repair. Available design information is briefly discussed, and design references are listed.

Keywords: fiber-reinforced shotcrete; fibers; linings; mining; repair; steel fibers; synthetic fibers; tunnels.

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