



TECHNICAL BULLETIN FC-7

FAQs ON CONCRETE THICKNESS AND FINISHING

Q: Can I reduce concrete thickness with the use of macro-synthetic fibers like TUF-STRAND SF?

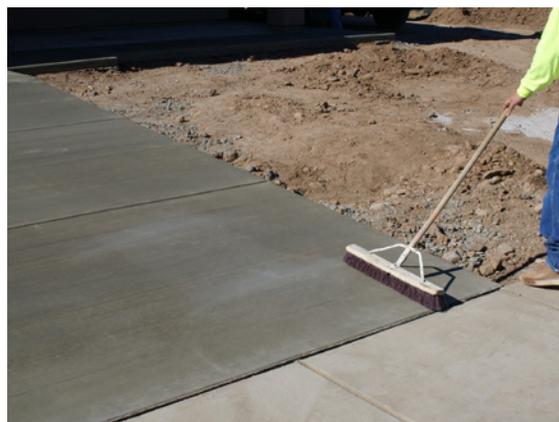
A: The use of fiber-reinforced concrete in a floor slab or pavement can alter the engineering properties of how concrete cracks and ultimately transfers applied loads down to the base material beneath the concrete. As such, there is the possibility that moderate to higher volumes of macro-synthetic fibers can be used to slightly reduce concrete thickness. This principle would be analogous to adding additional conventional reinforcing to strengthen an existing unreinforced floor design.

The TUF-STRAND SF Slab on Ground Design Software and Design Program can offer a designer the possibility to reduce a floor thickness by evaluating all of the in-place loading requirements, soil and concrete quality and contribution of fibers. By utilizing Yield Line Theory, a design philosophy for concrete properties, the reduction of floor thickness accompanied by an increase in fiber dosage may be possible. The economics of this trade-off will have to be investigated prior to implementation. Please contact your local Euclid Chemical Sales Representative for more information. This specialized design may only be conducted with cooperation from all parties involved including the owner, engineer and contractor.



Q: Will fiber-reinforced concrete cause any finishing problems?

A: As with any floor, the final appearance is only as good as the finishing practices applied to it. With any fiber-reinforced slab, there is the possibility that fibers may be present and visible at the surface. However, fiber-free appearances are easily attainable and accomplished regularly. The use of power-trowel equipment on floor slabs will usually bury all fibers provided that the time of finishing is correct and that adequate paste is present. For broom-finished concrete, it is very possible that any type of fiber (micro, macro, steel) may be visible at the surface, however, with synthetic fibers, are no issues related to safety or corrosion. Broom finished surfaces should only be textured in one pass and with clean equipment to prevent excessive disruption to the surface. Fibers may also be burned or mechanically removed if a fiber-free appearance is desired. For exterior applications with vehicular traffic, visible fibers will eventually wear over time. For formed surfaces, such as precast concrete, fibers will generally not be visible along the surface. Additional guidance on finishing floors using TUF-STRAND SF is provided in Technical Bulletin FC-10, FAQs on Pumping and Finishing FRC.



For additional questions, comments or further explanations, please feel free to contact The Euclid Chemical Company at your convenience.