

# 10 THINGS TO KNOW ABOUT FIBER-REINFORCEMENT

- 1 Adding fibers to the mix can reduce slump. ACI 544.3 provides recommendations and guidance to modifying the mix design and improving workability. Perform trial batches when using admixtures.
- 2 Consult International Building Codes and ASTM C1579 standards for dosage minimums per cubic yard of concrete.
- 3 Synthetic fibers in concrete can delay the appearance of bleed-water at the surface, which can impact the overall timing of finishing operations on larger slabs.
- 4 Stiff or rigid fibers typically have a greater tendency to protrude up through the slab more than flexible fibers.
- 5 Specifications should be performance-based and dependent on the application.
- 6 The American Concrete Institute, the American Concrete Pavement Association and the National Concrete Pavement Technology Center have developed guidelines and recommendations on how to properly select and use fiber in concrete.
- 7 With fibers in your concrete, you can place concrete directly from the ready-mix truck as opposed to pumping concrete when using rebar. Ready-mix trucks can quickly and efficiently place the concrete at the required project location.
- 8 You can follow the same standard practices in finishing techniques though material type, architecture, dimension, and dosage may all affect the surface finish.
- 9 Test for the amount of air entrainment in the first few loads to be sure the polycarboxylate and macro fiber product being used isn't increasing the air entrainment level beyond acceptable levels.
- 10 While they're meant to be distributed evenly in fresh concrete and oriented in every direction for three-dimensional reinforcement, fibers tend to lay flat on the surface. Fibers that stick above the surface can be removed.

# OFFICIAL GUIDES & RESOURCES FOR FIBER-REINFORCEMENT

- 1. ACI Guide to Design of Slabs-on-Ground (ACI 360R-10):**  
[www.concrete.org/Portals/0/Files/PDF/Previews/360R-10web.pdf](http://www.concrete.org/Portals/0/Files/PDF/Previews/360R-10web.pdf)
- 2. ACI Guide to Design with Fiber-Reinforced Concrete (ACI Committee 544):**  
[www.concrete.org/Portals/0/Files/PDF/Previews/544.4R-18\\_preview.pdf](http://www.concrete.org/Portals/0/Files/PDF/Previews/544.4R-18_preview.pdf)
- 3. Standard Test Method for Evaluating Plastic Shrinkage Cracking of Restrained Fiber Reinforced Concrete (Using A Steel Form Insert, ASTM C1579-21):**  
[www.astm.org/c1579-21.html](http://www.astm.org/c1579-21.html)
- 4. American National Standards Institute / Steel Deck Institute – C-2017 Standard for Composite Steel Floor Deck-Slabs:**  
[www.sdi.org/wp-content/uploads/2017/02/ANSI-SDI-C-2017-Standard.pdf](http://www.sdi.org/wp-content/uploads/2017/02/ANSI-SDI-C-2017-Standard.pdf)
- 5. Fiber-Reinforced Concrete for Pavement Overlays: Technical Overview (April 2019):**  
[intrans.iastate.edu/app/uploads/2019/04/FRC\\_overlays\\_tech\\_oww\\_w\\_cvr.pdf](http://intrans.iastate.edu/app/uploads/2019/04/FRC_overlays_tech_oww_w_cvr.pdf)
- 6. Overview of Fiber-Reinforced Concrete Bridge Decks (March 2019):**  
[intrans.iastate.edu/app/uploads/2019/03/FRC\\_bridge\\_decks\\_oww\\_w\\_cvr.pdf](http://intrans.iastate.edu/app/uploads/2019/03/FRC_bridge_decks_oww_w_cvr.pdf)
- 7. ACI's Informational Resources on Fiber:**  
[www.concrete.org/topicsinconcrete/topicdetail/fiber#standards?search=fiber&search=fiber](http://www.concrete.org/topicsinconcrete/topicdetail/fiber#standards?search=fiber&search=fiber)



AC Business Media is a leading business-to-business media and business intelligence company with a portfolio of renowned brands in heavy construction, asphalt, concrete, paving, rental, sustainability, landscape, manufacturing, logistics and supply chain markets. AC Business Media delivers relevant, cutting-edge content to its audiences through its industry-leading digital properties, trade shows, videos, magazines, webinars and newsletters. It also provides advertisers the analytics, data and ability to reach their target audience.

