THE MANY BENEFITS OF... FIBER

By Lisa Weaver

I love win-win situations. To me, fiber is a great example. This nutritional nugget that your mother always nagged you about consuming is also great for concrete.

Just like the many sources of fiber in food, fiber for concrete is offered in many varieties. You can choose from monofilament, fibrillated, homopolymer polypropylene/polyethylene, and low carbon, cold drawn steel wire fiber. Now that's a mouthful! I prefer to describe the varieties of fiber in a less technical way -- fishing line, hairnets, toothpicks, baby oars, and crinkle fries.

All kidding aside, the one thing people don't kid about is money. One of my customers described a concrete driveway like this: "No one ever looks at a driveway and says, 'Boy, that sure looks strong.' They look at the cosmetic appearance of the driveway, and a crack to them is bad news."

The top surface of concrete is about as thin as a dime. Moisture loss in the surface can cause cracking. Cracks of any kind can affect profit.

One of the first benefits of fiber involves the reduction in plastic shrinkage cracking. Fiber in concrete is similar to one of those children's mazes you find on a restaurant menu. Like concrete, bleed water starts at one point and works its way to the exit – or surface of the concrete. With the absence of fiber, bleed water can rocket to the top, which can cause the surface to dry out too fast – resulting in plastic shrinkage cracking. However, with the fiber in place, the bleed water – like the maze – must travel around the strands. By the time it weaves its way to the surface, the timing for plastic shrinkage has usually been avoided.

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Another benefit is the replacement of nonstructural steel, such as wire mesh. By the time you figure in hauling, cutting, waste, labor, and sometimes chairs to promote proper placement, fiber is a cost effective solution. This was the case in a project that involved concrete pavement at various bus stops for our city's regional transit system.

Our company did about 2,000 cubic yards of bus pads throughout the City of Dayton, Ohio. This was at a time when the steel was priced extremely high. The specifications called for double matted, heavy gauge, 42-pound welded wire fabric.

Our customer had bid the project prior to the spike in steel pricing and needed an alternative to help them make money on this job. The answer was high performance polymer fibers. Our customer saved lots of money – especially on the labor hours. The City was pleased, our customer was happy, and we made money as well -- or as I like to say, our industry's version of a hat trick.

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On another project, a customer was behind schedule due to cold weather. To save a day of prepping the slab with wire, he opted to use a polypropylene, fibrillated fiber. In addition to the labor savings, he also saved money by being able to use calcium instead of the higher dosed, more expensive, non-chloride accelerator – since this slab no longer contained steel. That savings alone was equivalent to getting the fiber for free.

In our customer service department, asking if a customer wants fiber is as common as a fast food drive thru clerk selling fries with a burger. It's a great combination. Now if only fast food restaurants could figure out how to make fries full of fiber. In the meantime, I'll eat my high fiber cereal and dream on.

About the Author

Lisa Weaver is a sales representative for Ernst Concrete in Dayton, OH. She has been in the industry since 1997. Lisa is currently on the board of directors for American Concrete Institute/Greater Miami Valley Chapter; Ohio Ready Mixed Concrete Association's (ORMCA) Concrete Futures and ORMCA's L.E.A.R.N. (Ladies Educational and Ready Mix Network) in which she is a founder. She is certified in ACI Field Testing and as an ACI Flatwork Technician. She is also a certified Concrete Technician and Sales Certified through ORMCA.
Lisa can be reached at lweaver@ernstconcrete.com