HOW to Specify Grout

ASTM C 476 for masonry grout dictates proportions by loose volumes and is convenient for small quantities of grout mixed on site. These grout mixtures have high cement contents and tend to produce much higher strengths[4] than specified in ACI 530[5] or Model Codes.

When grout is ordered from a ready mixed concrete producer, the specifications should be based on consistency and compressive strength. Converting loose volume proportions into batch weights per cubic yard is subject to errors and can lead to controversies on the job.

Specifications should address the addition of any required admixtures for grout. Conditions of delivery, such as temperature, time limits, and policies on job site addition of water, should be specified. Testing frequency and methods of acceptance must be covered in specifications.

HOW to Test Grout

The consistency of grout affects its strength and other properties. It is critical that grout consistency permit the complete filling of void space without segregation of ingredients.

Consistency of masonry grout may be measured with a slump cone (ASTM C 143), and slumps of 8-11 in. are suggested. This is particularly applicable for grouts containing $^1/_2$ in. or smaller coarse aggregate.

For grouts without aggregate, or only fine aggregate passing a No. 8 sieve, consistency is best determined with a flow cone (ASTM C 939). For flow values ex

SYNTHETIC FIBERS FOR CONCRETE

WHAT are Synthetic Fibers?

Synthetic fibers specifically engineered for concrete are manufactured from man-made materials that can withstand the long-term alkaline environment of concrete. Synthetic fibers are added to concrete before or during the mixing operation. The use of synthetic fibers at typical addition rates does not require any mix design changes.

WHY Use Synthetic Fibers?

Synthetic fibers benefit the concrete in both the plastic and hardened state. Some of the benefits include:

- reduced plastic settlement cracks
- reduced plastic shrinkage cracks
- lowered permeability
- increased impact and abrasion resistance
- providing shatter resistance

Some synthetic fibers may be used as secondary reinforcement. (Hardened Concrete Performance Documentation Required.)

HOW do Synthetic Fibers Work in Early Age Concrete?

Early age volume changes in concrete cause weakened planes and cracks to form because a stress exists which exceeds the strength of the concrete at a specific time. The growth of these micro shrinkage cracks is inhibited by mechanical blocking action of the synthetic fibers. The internal support system of the synthetic fibers inhibits the formation of plastic settlement cracks. The uniform distribution of fibers throughout the concrete discourages the development of large capillaries caused by bleed water migration to the surface. Synthetic fibers lower permeability through the combination of plastic crack reduction and reduced bleeding characteristics.

HOW do Synthetic Fibers Work in Hardened Concrete?

The early age concrete benefits of using synthetic fibers continue to contribute to the hardened concrete. Hardened concrete attributes provided by synthetic fibers are lowered permeability and the resistance to shattering, abrasion, and impact forces.

For more information on fiber products see our Site Mesh Product line on page - 168