

## SCC is the Future

In my last TechTalk, I mentioned that it had been my intent to discuss SCC (Self Compacting Concrete), but September 11 changed that. I will, therefore, give you an overview of just what SCC is all about, in this Newsletter.

SCC is concrete that you are going to be hearing a lot about, in the coming years, and months. Introduced to the concrete industry by the Japanese in the late 1980s, it is just now coming into its own in North America. Some Canadian companies were mixing SCC as early as five years ago, and US producers started utilizing it about three years ago. Whereas I previously expected that it would be used for at least fifty percent of all precast concrete products within ten years, I am now convinced that it will reach that degree of popularity within five years.

Just what is this fancy new product that has so many folks excited? SCC is a very fluid, high strength concrete that flows almost like water, deaerates, self-compacts with little or no vibration, does not segregate, and is self-levelling. Products made with SCC have an excellent finish, and are virtually free of bug holes.

To accomplish this very special mix, third and fourth generation high-range water reducing (HRWR) admixtures are required - that is, special and expensive superplasticizers. Viscosity-modifying admixes are also needed, as well as filler materials. Frequently, fly ash is used as the filler. Because the mix designs are so unique, I strongly recommend that you work them out with the supplier of your SCC admixes.

SCC is not measured in terms of slump; rather, the pertinent measurement is referred to as **slump flow** or **spread**, which usually varies from 18" to as much as 30". That is, a horizontal measurement is taken, rather than a vertical one. Even though the **puddle** of concrete has a large spread, the coarse aggregates do not segregate - the superplasticizer holds the aggregates in suspension.

Although the material cost will be higher than for conventional concrete, most producers find that they actually save money overall because they no longer require time consuming, labor intensive vibration. No vibration, means you can eliminate vibrators and all of their maintenance and replacement expenses. Noise pollution is drastically reduced, so there is also an environmental advantage.

Because of the way SCC flows, concrete can be poured at only one or two locations - the concrete will simply flow, without segregating and will level off. It will fill every part and corner of the form, and do it faster than conventional concrete, so it is very effective for geometrically demanding products. Because it is so fluid, SCC is the perfect concrete for structures that are heavily congested with rebar.

Most of the properties of SCC are similar to those of conventional concrete, and the structural design

requirements are no different. Because low water/cement ratios are used, SCC concrete is usually stronger and less permeable.

I have given you only a brief introduction to SCC. This is a material that you will want to learn more about, so I recommend that you contact your admix supplier to see how they can work with you to improve your product while making it faster, with less labor.