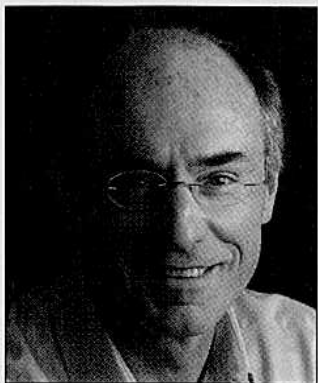


Married to concrete



It seems that sustainability is on everyone's mind these days. No less a figure than Mohan Malhotra, one of North America's leading concrete researchers, began this fall's American Concrete Institute convention by demanding that we find a way to reduce the impact of concrete on the environment. That was followed by a full-day seminar on ways to increase concrete's sustainability—mostly through incorporation of higher volumes of fly ash in the mix.

But what does sustainability really mean? For me to understand it, I need to relate it to something in my life—my marriage for example. If I force everything to be exactly my way, make my wife and daughter do what I want when I want, watch football all day Sunday after having worked all week, I may get away with it for a little while, but it can't last—it's not sustainable. On the other hand, if we find a balance, if I compromise on things that are less important to me, then my wife is happy, I'm happy, and our relationship is sustainable—it will last nearly indefinitely.

Concrete may not be much like a marriage, although many of us spend more time with it than we do with our spouses. Concrete is a sustainable construction material because its overall impact on the future is positive in terms of resource depletion. The structures we build with concrete are durable—they don't rot, can't be attacked by termites, and will stand up to harsh conditions like hurricanes or earthquakes. Concrete can be used to create energy-efficient buildings, considering its air-tightness and thermal mass. It's sustainable because the materials that go into it, other than cement and admixtures, are locally produced, and we can incorporate recycled materials, like fly ash and slag, into concrete.

But then we get to cement, which is the energy-intensive part of the equation. I've heard estimates that cement production worldwide produces as much as 25% of the world's load of greenhouse gases.

That may be an exaggeration, but today, at least in North America, we can justifiably proclaim that cement is not so bad. The Portland Cement Association has appointed a director of sustainable development, Dave Shepard, to give voice to this. They note that cement manufacturing in the United States consumes only one-third of 1 percent of the nation's energy and produces only 1.5% of the national output of CO₂. And, that the industry has reduced these figures significantly over the past few years and will reduce them further in the near future.

Buildings in the United States, according to PCA, consume 10% of the world's energy. That is a really huge figure and that's not sustainable—it's like a bad marriage, and increasing the use of concrete is one way to save it. We need to get that message out.

Concrete is a sustainable construction material because its overall impact on the future is positive.

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