Rachel J. Detwiler

## Editor's Message

# What is high-performance precast concrete?

When high-performance concrete emerged in the 1990s, authors were careful to caution their readers that high performance wasn't the same as high strength, but included other properties such as durability. Nearly always, they then proceeded to describe their research or construction projects exclusively in terms of concrete compressive strength $f'_c$ as if they themselves didn't understand the term they were using so freely. After all, everyone understands what compressive strength is and how to measure it. The same cannot be said for durability or workability.

At the 2012 PCI Convention and National Bridge Conference, PCI and its regional affiliates launched a marketing campaign focusing on high-performance precast concrete. In January, PCI's Marketing Council completed its white paper on high-performance precast concrete. It cited Congress's definition of "high-performance building" in the Energy Independence and Security Act of 2007:

> *The term "high-performance building" means a building that integrates and optimizes on a life cycle basis all major high performance attributes, including energy conservation, environment, safety, security, durability, accessibility, cost-benefit, productivity, sustainability, functionality, and operational considerations.*

The white paper, which you can download at http://www.pci.org/hpprecast, discusses how precast concrete contributes to high-performance buildings through efficient use of materials; minimal environmental impact; energy efficiency; resilience to earthquake, hurricane, and blast loading; occupant safety; and indoor air quality.

High-performance precast concrete is just another marketing slogan unless design professionals embrace the idea and implement it in their work. This issue of *PCI Journal* is dedicated to showing you what it means in practice.

Our cover story looks at the Higher Ground homeless shelter in Minneapolis, Minn. The insulated wall panels minimize the need for heating and cooling. We asked a building science consultant to explain some of the techniques available to evaluate the energy efficiency of buildings in case you'd like to try it yourself. Other sustainable features include colors and architectural finishes that obviate the need for flooring and drywall, reduce the need for paints and coatings, and minimize construction and maintenance costs. Natural daylight contributes to the welcoming atmosphere and reduces the need for artificial lighting. The open floor plan made possible by the precast concrete trusses promotes visibility, essential to the safety and security of clients and staff. And precast concrete easily meets the requirements for fire resistance.

The 2013 PCI Design Awards also focused on high-performance precast concrete. In their applications, contestants were asked to discuss the high-performance aspects of their projects. As you'll see in our PCI Design Awards supplement, design professionals and owners appreciate the ease of construction, energy efficiency, durability, resilience, and flexibility that it affords.

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