

# Reach for Greatness

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America's precast/prestressed concrete industry, it would appear, has wholeheartedly taken Ralph Waldo Emerson's advice: "Build a better mousetrap and the world will beat a path to your doorstep." And many within the precasting business, from designers to manufacturers to constructors, proudly declare the industry has come of age.

Such claims are well justified. In most major American cities, architectural precast panels adorn the facades of high-rises and other signature buildings. Many modern multi-story structures have prestressed concrete structural frames, floors and roofs. In San Francisco, one of the most highly active seismic regions in the world, there stands today a 39-story precast, prestressed framed structure. Currently, more than 70 percent of all state bridges being constructed across the country use prestressed concrete girders.

Precast/prestressed products and systems have, over the years, proven to be highly versatile, unique and cost effective – capable of meeting most of today's architectural and structural building needs. Countless magnificent precast structures grace our national landscape, proving that the precast industry has become a major force in the world of construction. Yet, few outside of the precast community – and the fields of engineering, architecture and construction – understand the influence it has had on the built environment of today and the impact it can have in the future.

Like those in groups making up America's immense building industry, precasters tend to be isolationists. They are reserved when it comes to interfacing with the general public. They focus on their own work and make few meaningful or comprehensive efforts to reach beyond the industry. Rarely do they publicize the feats of industry people in the mainstream media. Usually, the only glimpse outsiders get of the profession is when some structure falls down or an extravagant construction lawsuit occurs.

One of the biggest deterrents to advancing structural en-

gineering and construction innovation in the United States has been its litigious nature – the constant threat of a lawsuit if things don't go perfectly. Particularly troublesome for the design/construction community is that engineers, architects and builders themselves are frequently at odds with each other, taking opposing sides during legal battles. Because of this, the standards of care for the industry often get established by trial lawyers and the courts rather than by engineers and contractors.

As reported by CERF's Bernstein and Lemer in *Solving the Innovation Puzzle*, "Many U.S. design and construction firms are finding it difficult and unprofitable to be as innovative as they might like. New technologies developed by U.S. industry and academic institutions are being commercialized overseas. Our global competitors are becoming more successful, not because they are necessarily more inventive, but because they operate in a setting more conducive to spreading innovation in the marketplace." Now is the time to change this! Otherwise, ground-breaking advancements in American structural engineering and construction will continue to be stymied.

Sooner than later, American design/construction industries as a whole must develop better ways to work together and become active in getting fair tort reform legislation enacted. Though the precast industry participants – structural engineers, architects, fabricators, erectors and general contractors – typically work better together as a team than most other industry groups, much more can be done to advance teamwork and sound partnering techniques. As good as these partnerships continue to be, they can get even better. Only the lack of will to do so would prevent it from happening.

In the past, a narrowness of purpose sometimes bordering on naiveté has, at times, hindered the precast industry from reaching its highest level of greatness. Its narrow focus has also affected its ability to attract talented young people into

its ranks. Bright young men and women, the lifeblood of any profession, choose careers that have relevance to the world around them – ones that allow them to make a difference. And today's youth want heroes and heroines – role models they can emulate – in the profession of their choice. Consequently, more public relations efforts by the precast community are needed to apprise the public of its accomplishments and convince would-be industry members that, within the precasting business, heroes and opportunities for fulfillment exist. PCI's now closer liaison with universities and the establishment of the PCI Education Foundation are initiatives that will make a difference in this area.

In his bestseller *Last Man Down*, Richard Picciotto – an NYFD battalion commander – exalted the heroics of New York City firefighters during the World Trade Center (WTC) catastrophe. The last survivors of Tower One (the second twin tower to fall), Commander Picciotto and his handful of firefighters were spared, not because of anything spectacular they did, but because the bottom ten stories of the central stairwell structure, astonishingly, remained standing – an upright concrete shaft in the middle of a massive, smoldering heap of construction debris.

The legendary actions of the NYFD firefighters, including their ultimate survival, is standard fare for movies, TV and books – mainly because they faced danger and saved lives while the world was watching. When Hollywood makes its movies about the collapse of the WTC, firefighters and police officers will likely be depicted as the stars of the drama just as the movie "Towering Inferno" did decades ago.

But how will today's Hollywood depict structural engineers and construction people? As heroes and consequential players in the events that ensued? Many worked on rescue teams and salvage crews down in the rubble. In addition, engineers and contractors were the ones who built the stair structure that resisted failure and ultimately spared the lives of Picciotto's men. Countless other lives were also spared because the structures adjacent to the WTC – designed and constructed by engineers and contractors – withstood the tremendous forces of the day.

And more than the people, engineers and constructors saved that day; it's all of those who depend on the structures they build everyday, everywhere. The safety of all people – exponentially more than all firefighters have ever saved – depends on the talents of the professionals who design, fabricate and construct the precast structures that citizens occupy daily.

Yet, even from this perspective, Hollywood is not likely to portray engineers and builders as the heroes in future WTC-type movies. Chances are it will depict them as was done in "Towering Inferno" – the structural engineer as an insignificant, dunce-like nerd and contractors as greedy wrongdoers.

This type of portrayal could be mitigated, however, if engineers and constructors in large numbers would step forward and make their worth known in the public arena.

Many books – like *Last Man Down* glorifying firefighters – are sure to be written about 9-11 from different angles. But will there be any books highlighting the exploits of structural engineers and constructors during rescue and salvage efforts, or during construction and design? I think not! Especially if the past is a prologue to the future and the engi-

neering and construction communities remain silent. Books featuring the accomplishments of engineers and builders will happen only if members of the industry – and professional associations like PCI – take action. Getting PCI's flagship publication, the well-recognized and respected PCI JOURNAL, more widely distributed outside the design/construction field would be a good start.

The destruction of the WTC set into motion public demand for corrective action and code changes. And it has brought forth all sorts of forecasts, many about the future of super tall highrises. Duke University engineering and history professor Henry Petroski, for one, predicted, "The era of the signature building may very well have ended on September 11, 2001, and America's skylines – as well as many others around the world – may remain for the next several decades as they are today." He added, "Nontraditional structural materials, such as ceramics, might someday provide the framework for new fire-resistant skyscrapers. And current research into nanotechnology – the manipulation of structures on the atomic scale – might in the distant future yield new materials suitable for building toward the sky. But ceramics are much more brittle than steel, more susceptible to snapping under impact, and nanotechnology is still in its infancy." Will innovations and advances in the precast/prestressed concrete industry play a role in this? It's totally up to the industry and its members.

Many of the code revisions anticipated because of 9-11 will dramatically impact future design and construction, not only for skyscrapers, but for *all* projects, big and small. Firefighting procedures, fire protection and blast design requirements, redundancy in structures and evacuation procedures are a handful of items that will be affected.

How much input will the precast industry have in all of this? Again, it's up to its leaders and members – and how involved they choose to get in the process. Remember what Will Rogers said: "Even if you're on the right track, you'll get run over if you just sit there."

There is always room for the precast industry to improve, for there are a great many more "mousetraps" to create and build. For that, along with major advancement, to occur, the industry must do five things:

- Encourage its members to take on leadership roles in their communities.
- Celebrate its heroes – and notable projects – by doing outreach such as publishing books that the public *will* read.
- Create an excitement about the industry that will attract bright young people into the field.
- Promote better partnerships and partnering techniques while reducing the use of litigation to solve problems.
- Foster an atmosphere that highly rewards cutting-edge design and innovation.

The world is run by those who show up. And as vital members of the precast community, you can change things by actively showing up. More than that, you can bring about *real* change by showing up to *lead*. So reach for your highest level of greatness. Keep in mind the words of General Charles de Gaulle: "Nothing great will ever be achieved without great men, and men are great only if they are determined to be so!"