

Industry News

Buildings Can Be Made Safer, But at What Cost? *Secure buildings force difficult, expensive choices*



by Tracy F. Ostroff

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Changes that will spike construction and ownership costs to unprecedented levels will result in the development of buildings that better protect occupants, thwart terrorist attacks, and build more confidence in the country's safety, a construction consultant

told attendees of the 2001 Professional Design-Build Institute of America conference in Boston last week.

These changes, however, may result in buildings that resemble bunkers, said Michael Dell'Isola, the consultant, engineer, and senior vice president with the Hanscomb engineering firm, Atlanta, in comments in a press release and during an interview this week.

It puts buildings that are "pleasant and desirable" in conflict with buildings that are "comfortable and secure," Dell'Isola said.

Dramatic impact

These changes will have a dramatic impact on the \$500-billion-a-year U.S. construction industry, he said, and may spill over into the \$3.2 trillion global construction market." Dell'Isola, with more than 30 years' experience in the field, is a value engineering specialist. Based in Hanscomb's Washington office, Dell'Isola has worked on security design for, among many other buildings, the Pentagon and several embassies.

"Instead of building structures that you have to run out of in emergencies, we're going to be asked to start building structures that you can run into for safety," Dell'Isola predicted. "With current technology, we can build a structure that can withstand just about anything a terrorist can do, the trouble is nobody could afford to build it, and no one would want to live or work in it."

He noted that the World Trade Center was designed to withstand the impact of an airplane. It was the intense heat from the burning jet fuel, though, and not the impact that caused the collapse.

Not inexpensive

These structures are, "not inexpensive" Dell'Isola said. "That's

where we have choices to make." Compromises would include designing buildings with little or no natural light and establishing different air-intake and climate-control systems so that they are not all centralized in one location, as is commonly done in current projects. These setups are particularly vulnerable to people of ill intent.

He conjectured that not only would building costs rise, insurance, maintenance, and security costs would escalate as well. Dell'Isola said this would be especially true for, but not limited to, public buildings where access is not restricted to a particular group of people and where risks—such as shattered glass and

chemical and biological hazards—exist and threaten the people who occupy them.

He said one way to mitigate these increases would be to involve insurance representatives as advisers from the very beginning of the project, as is more commonly done with industrial sites. This would allow clients, designers, and engineers to consider costs up front, and to be aware of the trade-offs involved in building a secure structure.

He also noted that we live in a litigious society, and insurance costs are linked with the cost of liability implications. "The insurance aspects of doing business will be overwhelming," Dell'Isola said, and could affect things we take for granted every day.



DELL'ISOLA

Security improvement options

Dell'Isola outlined some available options to improve security during the initial construction phase:

- Increase stairwell width
- Harden buildings using newer forms of high performance steel, which provide greater resistance against impact and heat; new forms of lighter, stronger concrete, which add less weight and space to a structure, have the same effect
- Reinforce buildings with concrete pillars
- Slow spread of fire with sheeting, made from flame-retardant composite materials such as gypsum
- Use protective glazes to stop glass from shattering and install windows made from laminated glass—like those used in car windshields
- Employ specialized filters and blast-resistant shelters for HVAC systems and air distribution system sensors that warn of toxic contamination. ■