



# Fire Protection

By Richard G. Schulte, Schulte & Associates, Evanston, IL

## Risk and the Politics of Fire Protection

Since Sept. 11, there have been many fire safety “experts” (and plenty of non-experts too) out trying to scare the American people about the dangers of fires in high-rise buildings, rather than reassure Americans that the fire risk is actually quite small.

Interestingly enough, this issue was addressed in a general sort of way in an article that appeared in the April 24, 2003 edition of the *Wall Street Journal* Web site titled, “Why Are Americans So Scared?” It’s worth spending some time searching through the archives for the article. Here are just a few excerpts:

“Even in 2001, when more than 3,000 people died in a terrorist attack on the U.S., he [referring to a person discussed in the article] was 12 times as likely to lose his life on a highway as at the hands of a hostile fanatic.”

“Armed with scientific and technological breakthroughs, Americans have dramatically reduced their risk in virtually every area of life, resulting in life spans 60% longer in 2000 than in 1900.”

“The past century also saw the flow of information about risk grow from a trickle to a tidal wave. Government officials, scientists, marketers and the media learned to use risk as a way to get people’s attention.”

“It’s much easier to scare than unscare,” says Paul Slovic, professor of psychology at the University of Oregon. “We trust people who tell us we’re in danger more than people who tell us we’re not in danger.”

“Marketers and the media have capitalized on people’s desire for risk-free living by appealing to their vulnerability.”

“As more warnings have been dispatched by more Cassandras, however, some people have started to lose their faith in the traditional authorities – political leaders, scientists and journalists.”

“Unfortunately, once a person has learned to fear something, he or she may always associate the experience with fear. That means that over a lifetime, fears tend to accumulate rather than supplant one another. Furthermore, humans can fear events they have only read or heard about, which is why people worry about calamities they have never endured.”

Considering the above, let’s take a look at a few of the statements made by some about the World Trade Center disaster and fire safety in general since Sept. 11.

On June 24, 2002, a statement made by Ms. Beverly Eckert, representing the Voices of Sept. 11 group, at a public hearing on the World Trade Center held in New York included the following passage:

“The Towers of the World Trade Center were deathtraps. Fire, not planes, brought them down. I’ve heard the structural engineer and the builder speak with pride of the innovative design of the buildings – how they made them economically viable to build and to rent, by making their interior structure lightweight and open. They used trusses and bolts to hold the house of cards together.”

Ms. Eckert again repeated her accusation that the World Trade Center towers were a “house of cards” in another public hearing held in New York on August 13, 2002. Her statement includes this excerpt:

---

**Since Sept. 11, there have been many fire safety “experts” out trying to scare the American people about the dangers of fires in high-rise buildings.**

---

“And it also needs to be acknowledged that the efforts of the firefighters trying to rescue the occupants were cut short because of the premature collapse of the building. And that happened because the building lacked adequate fire-proofing, had limited fire suppression systems and was constructed with trusses and brackets that made the building little better than a house of cards.”

Obviously, if the World Trade Center towers were a “house of cards,” both towers would have collapsed immediately after being struck by aircraft, yet, according to statements made by Dr. W. Gene Corley in a presentation to the Chicago Chapter of the Society of Fire Protection Engineers on May 19, 2003, each tower remained standing long enough for 99 percent of the tower occupants located below the floors of impact to escape from the building. In this same presentation, Dr. Corley stated that most buildings with structural damage similar to that inflicted on the World Trade Center towers would have collapsed without being exposed to the effects of an uncontrolled fire subsequent to the structural damage. Dr. Corley’s statements in the presentation to the Chicago Chapter of SFPE paint an entirely different picture of the design and construction of the World Trade Center towers than painted by Ms. Eckert. Who should

*Continued page 10*

# Fire Protection

Continued from page 8

we believe – an individual whose only qualification to comment on the disaster is that she was a relative of one of the victims, or a structural engineer who was the leader of the World Trade Center Building Performance Study Team?

On March 6, 2002, the director of the National Institute of Standards and Technology (NIST), Dr. Arden Bement, Jr., testified at the Congressional Science Committee hearing on the collapse of the World Trade Center. Dr. Bement's testimony included the following excerpts:

*"The tragedy that the United States experienced on Sept. 11, 2001, was unprecedented when compared with any prior accident, natural disaster, or terrorist/war attack. The collapse of the twin World Trade Center towers was the worst building disaster in human history."*

*"In conclusion, I believe it is imperative for the U.S. to learn from the worst-ever building disasters in human history and take aggressive remedial action to minimize future losses."*

Unfortunately, Dr. Bement's state-

ments regarding the World Trade Center towers collapse being "unprecedented when compared with any prior accident, natural disaster, or terrorist/war attack" and being the "the worst-ever building disasters in human history" do not square with U.S. government records of other disasters. The U.S. Geological Survey (USGS) Web site (<http://quake.wr.usgs.gov>) indicates that the death toll of the San Francisco earthquake and fire that occurred on April 18, 1906 was actually 3-4 times the official death toll of 700 people. Other links provided on the USGS Web site indicate that the death toll of the San Francisco earthquake and fire exceeded 3,000 people. The photographs on the USGS Web site show that the devastation caused by the San Francisco earthquake and fire far exceeded the devastation in Lower Manhattan on Sept. 11.

The Web site for the National Oceanic and Atmospheric Administration (NOAA) (<http://www.noaa.gov>) also refutes Dr. Bement's testimony before the Congressional Science Committee. The

NOAA Web site includes the following statement:

*"On Sept. 8, 1900, the greatest natural disaster ever to strike the United States occurred in Galveston, Texas. In the early evening hours of that day, a hurricane struck Galveston, bringing with it a great storm surge that inundated most of Galveston Island and the city of Galveston. As a result, much of the city was destroyed and more than 8,000 people were killed within a few hours."*

Who should we believe – the Director of the National Institute of Standards and Technology or the U.S. Geological Survey and the National Oceanic and Atmospheric Administration?

The following statements appeared in an article titled "Towers' Strength Not Tested for a Fire, Investigators Find" written by James Glanz and published in the *New York Times* on May 8, 2003:

*"Federal investigators studying the collapse of the twin towers on Sept. 11, 2001, say they now believe that the Port Authority of New York and New Jersey, the government agency that built the towers, never performed the fundamental tests needed to determine how their innovative structures would perform in a fire."*

*"The investigators have said that it is unclear whether, even if the tests had been done and the buildings been found to have met standards, the lightweight floor structures, called trusses, and the fluffy fireproofing on them could have been expected to withstand the intense fires of Sept. 11."*

*"The confusion [regarding the fireproofing] continued in 1975, several years after the towers had opened, when a sizable fire spread from the ninth to the 19th floor of the north tower. The fire caused buckling of some parts of the trusses on those floors."*

This same article in the *New York Times* also included the following quote from Dr. James Quintiere, a professor in fire protection engineering at the University of Maryland:

*"Buildings don't fall down in a fire."*

Clearly, the *New York Times* article contradicts itself. One paragraph of the article indicates that the fireproofing of the structural systems in the World Trade Center towers was never tested, while another paragraph of the article indicates that a fire which spread from the ninth to

# Fire Protection

Continued from page 10

the 19th floors of the north tower (Building WTC 1) occurred in 1975. The article further states that portions of the floor trusses on the floors where the 1975 fire occurred “buckled,” but, obviously, the north tower did not collapse in the fire. Rather than conducting fire testing in a laboratory, the floor construction of the north tower was subjected to performance (field) fire testing in 1975. The 1975 fire (field testing) clearly demonstrates that the fireproofing provided for the building was more than adequate to prevent a collapse of the World Trade Center towers when the building was subjected to a major fire exposure caused by the combustion of the typical contents of the building. The 1975 fire in the World Trade Center demonstrates that Dr. Quintiere’s statement in the *Times*’ article is correct: “[high-rise] buildings don’t fall down in a fire,” which occurs in the typical contents of high-rise buildings. However, a high-rise building may collapse in a major fire if the building structure is first damaged by the impact of a large aircraft (or missile), assuming, of course, that the building doesn’t collapse immediately after the impact of the aircraft (or missile).

Why all of the misleading statements about the collapse of the World Trade Center? The *Wall Street Journal* article titled “Why Are Americans So Scared?” provides an answer to that question which is probably as good as any, but perhaps the question can be best answered in an engineering journal using an empirical equation:

$$\text{Fear} = \text{Money}$$

The more fear created by the “experts,” the more money in the experts’ pocket, or, in the case of the National Institute of Standards and Technology, the more fear created, the greater the research funding for NIST. It’s sad to think that the memory of the collapse of World Trade Center towers has been used as a sales pitch by “experts” in order to secure funding for unnecessary research into high-rise building fire safety, isn’t it? The data on high-rise building fires (published by the National Fire Protection Association in Sept., 2001) speaks volumes, but no one at NIST bothered to tell the Congressional Science Committee about the excellent fire safety record of American high-rise buildings. I wonder why? □

## About the Author

*Richard Schulte is a 1976 graduate of the fire protection engineering program at the Illinois Institute of Technology. After working in various positions within the fire protection field, he formed Schulte & Associates in 1988. His consulting experience includes work on the Sears Tower and numerous other notable structures. He has also acted as an expert witness in the litigation involving the fire at the New Orleans Distribution Center. He can be contacted by sending email to rschulte@plumbingengineer.com.*

*This and several of Mr. Schulte’s previous columns comprising a series on the World Trade Center collapse can be downloaded (in PDF format) from the **Plumbing Engineer** Web site, [www.plumbingengineer.com](http://www.plumbingengineer.com). They are located in the “Resources” section.*

Circle 008 on Reader Service Card

Circle 009 on Reader Service Card