Fire Protection

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How Much Building Fire Safety Is Enough?

Nothing in life is free. We all learn that sooner or later, but it's an easy lesson to forget. We know that incorporating fire safety features into buildings must be paid for by someone, but all too often those involved with developing building fire safety regulations simply ignore the costs of code compliance and, more or less, blindly write code requirements without a clear understanding of either the risk or the actual benefit of a specific code requirement.

Although it is assumed that the building owner will pay the cost of compliance with code regulations, the reality is that building owners must make a profit on their investment in a building. Hence, the cost of compliance with code requirements is simply passed on to building tenants or the clientele of the business. Ultimately, the cost of compliance with code requirements "trickles down" to you and me. Hence, in a roundabout way, it is the general public who pays for compliance with building code regulations. Given that, it seems reasonable that someone should ask whether or not the fire safety requirements contained in building codes are excessive.

Excessive code compliance costs not only result in higher costs for goods and services offered to the general public, but also have an impact the viability of building projects. Often the application of code requirements to existing buildings affects the feasibility of the redevelopment of an existing building. The deterioration of existing buildings because they are no longer economically viable and cannot be redeveloped (because of code compliance costs) also causes increased costs to the general public (in the form of urban blight, increased crime, etc.) Of course, these costs are difficult to quantify and are hidden.

Advocates of more restrictive fire protection related code requirements often make the argument that the cost of compliance with a new requirement is worth it if it saves just one life. Essentially, the heart of this argument is that we can't put a dollar value on a human life, hence, the cost of compliance with a more restrictive requirement is irrelevant. While making this argument sounds compassionate, we, as a society, routinely put a value on human life in our legal system and in everyday life.

If life is so precious that we can't put a monetary value on it, why do we as a society choose not to enforce the many safety laws we already have on the books? The answer to this question is obvious — we don't want to spend the money it would actually cost to enforce (and comply) with these laws. A good example of this is our traffic safety laws. We adopt all sorts of rules and regulations governing how we drive our vehicles, yet we don't want to pay for more police to enforce these laws. The result is that we tolerate the death of more than 40,000 Americans on our roads each year. The fact that we refuse to hire a sufficient number of police to enforce our traffic safety laws and allow so many Americans to die on our roads is evidence that we, as a society, do indeed put a dollar value on life (although we won't admit it).

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Statistics published by the National Fire Protection Association (NFPA) indicate that only seven Americans died in fires in all of the high rise office buildings in the United States in the 14-year period between 1985 and 1998. Given all of the publicity about the dangers of high rise building fires, most Americans would be astonished by this statistic, but the advocates of more restrictive fire safety measures dismiss this statistic by saying that this statistic is the result of compliance with newer more restrictive code requirements. While on the surface, this argument would seem to be valid, there are still numerous existing high rise office buildings which do not comply with "modern" requirements for high rise buildings. In fact, there are many existing high rise office buildings in our major cities that are not even protected by a sprinkler system. What this indicates is that the probability of dying in a fire in a high rise office building not protected by a sprinkler system is minimal. This also indicates that the probability of dying in a fire in a high rise office building which is protected by a sprinkler system, but which is not provided with all of the other

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fire safety features required in new high rise buildings, is practically nil.

Given the fire safety risk associated with high rise office buildings which do not comply with the modern high rise provisions, certainly the question should be asked whether compliance with modern high rise provisions is necessary for new sprinklered high rise office buildings. In other words, is the additional safety provided by the multiple fire safety features required in modern high rise office buildings worth the cost of providing the additional equipment? Perhaps the safety record of sprinklered high rise office buildings would be same without all of the other fire safety features required. Obviously, even suggesting the above might be considered to be heresy by some, but anyone who believes that all of the additional fire safety equipment required in a high rise office building should be provided should be able to cite studies showing the incremental benefit of providing each of the fire safety features required. Unfortunately, there are no such studies. In other words, the "modern" high rise provisions (developed in the middle 1970s) now included in the model codes were just opinions of "well respected experts" in the field. Like so many other provisions in our model codes, there was no sound technical basis for including many of the fire safety features in the high rise provisions.

In recent years, both the International Code Council (ICC) and the National Fire Protection Association (NFPA) have put together new model building codes. Developing a new building code is certainly a difficult task, however, to simplify the task, each of these organizations utilized existing codes as a framework for the new code. In other words, both the ICC and the NFPA accepted many of the provisions found in existing codes without examining the technical basis for the existing provisions. Given the state of our knowledge of fire safety, we should be able to write fire safety codes with a much firmer technical basis. To do any less is to penalize building owners (and the general public) and, perhaps, waste precious capital on unnecessary fire protection. If life is so precious that we can't put a value on it, shouldn't we be looking for ways in which to optimize the number of lives saved by capital expenditures on safety? One way to do this is to require each and every provision in the code to have a sound technical basis. Another way to do this is to apply a strict cost/benefit analysis to each and every provision contained in our fire safety codes. At present, even the mere suggestion of these common sense recommendations is revolutionary. □