

AN OPINION ON CODES AND STANDARDS

By Richard Schulte

In a column titled “*Should Codes + Standards Be Taught?*” which appears in the September/October 2011 issue of NFPA Journal®, Kathleen Almand asks two questions:

“As the [fire protection] profession develops capable design tools based on a modern understanding of the relationship between buildings, their occupants and contents, and fire safety, is the teaching of codes and standards redundant or out of date?”

“Can we continue to rely on an incremental approach to changing codes to enable the future of fire protection engineering?”

Ms. Almand provides an answer to both of these questions-yes, it is still appropriate to teach codes and standards in fire protection engineering curricula. Although I concur with Ms. Almand’s response to the questions which she raises, the substantiation for my opinion regarding the teaching of codes and standards in the fire protection field likely differs from most.

The use of codes and standards in the United States dates back to the late 19th century and the early 20th century. The early impetus for the development of building codes and standards came from the fire insurance industry. The development of codes and standards pre-dates the fire protection engineering profession and, over the course of a century, the fire protection field has consisted mainly of non-engineers, as indeed it does today.

The performance-based design approach to building fire protection is, in essence, an engineering approach to building fire protection. If the performance-based approach to building fire protection is to become the norm in building design, where will the personnel who are sufficiently knowledgeable in this design approach come from? In other words, how will we replace the thousands of non-fire protection engineers involved in the building design, design review and building inspection process?

The purpose of developing codes and standards 100 years ago was to allow building designers, architects and engineers, as well as code enforcement/inspection authorities and building construction personnel, not specifically schooled in the art of building fire protection to design and construct buildings in a “safe” manner. If we were to convert from the use of specification codes and standards exclusively to performance-based design standards, then architects, engineers, code enforcement/inspection authorities and construction personnel would need an entirely new skill set. In effect, the exclusive use of performance-based design for building fire protection would completely change the world not only of building design, but also building and fire code enforcement. Given that many code enforcement authorities and fire inspection personnel already have difficulty in understanding and applying building and fire codes, imagine the chaos which would be created if only performance-based fire safety design was utilized in the design of buildings.

There is no doubt that performance-based fire safety design has its place in the design and construction of buildings, but, for the most part, the use of performance-based design will likely be limited to tall buildings and mega-buildings. The use of performance-based design in the design of most buildings would simply be “over-kill”. After all, most buildings constructed these days continue to be single-family dwellings. There is simply no need to utilize performance-based fire safety design in the design and construction of single-family dwellings and relatively small buildings.

The above is not to say that performance-based design is not an important development in the field of fire protection. Performance-based design, in fact, has forced us to think about the specification provisions contained in codes and standards in an entirely different way and, therefore, has improved our specification-based codes and standards.

Looking to the future, it is my opinion that the field of fire protection will diminish in importance. While 30, 40 or 50 years ago, large building fires and fires where large life loss occurred were frequent occurrences, these types of fires rarely occur anymore. The number of structure fires which occur each year in the United States continues to dwindle, as does the life loss.

With the mandatory installation of sprinkler protection in all new residential buildings, and in most commercial buildings of any size, the number of fire fatalities which will occur annually will be no more than a handful some day. In other words, our successful control of fire and the elimination of most fire fatalities will some day doom the profession. That shouldn't be looked at as a bad thing however, that just means that we've done our job.

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Richard C. Schulte