IMSA Journal
November/December 2000

Performance-based Fire Alarm System Design—Introduction

by Dean K. Wilson, P.E.

One of the hottest topics in the fire protection community today, performance-based building design, has a direct impact on the design of fire alarm systems. Many have expressed concern, even fear, over the use of this alternative design method.

Yet, as with all change, performance-based design offers an important and necessary solution to fire protection problems in buildings that cannot easily meet the requirements of the prescriptive codes and standards. Such buildings may include historical structures where meeting the prescriptive requirements would destroy some of the historical authenticity of the structure. Others may include unique process systems where the nature and complexity of the process makes line-by-line compliance with the prescriptive requirements impossible.

Whatever the reason for choosing to explore the performance-based design alternative, fire protection professionals should not fear this valid engineering approach. Rather, they should seek ways to ensure that when they employ the performance-based design method they will not compromise fire safety.

The Society of Fire Protection Engineers has chartered a Task Group on Performance-Based Analysis and Design. This Task Group has worked diligently under the leadership of Eric R. Rosenbaum, P.E. of Hughes Associates to develop a comprehensive and thoughtful engineering-based approach to performance-based design. They have published the result of their work in a 170

page soft bound book entitled: *SFPE Engineering Guide to Performance-Based Fire Protection analysis and Design of Buildings.*

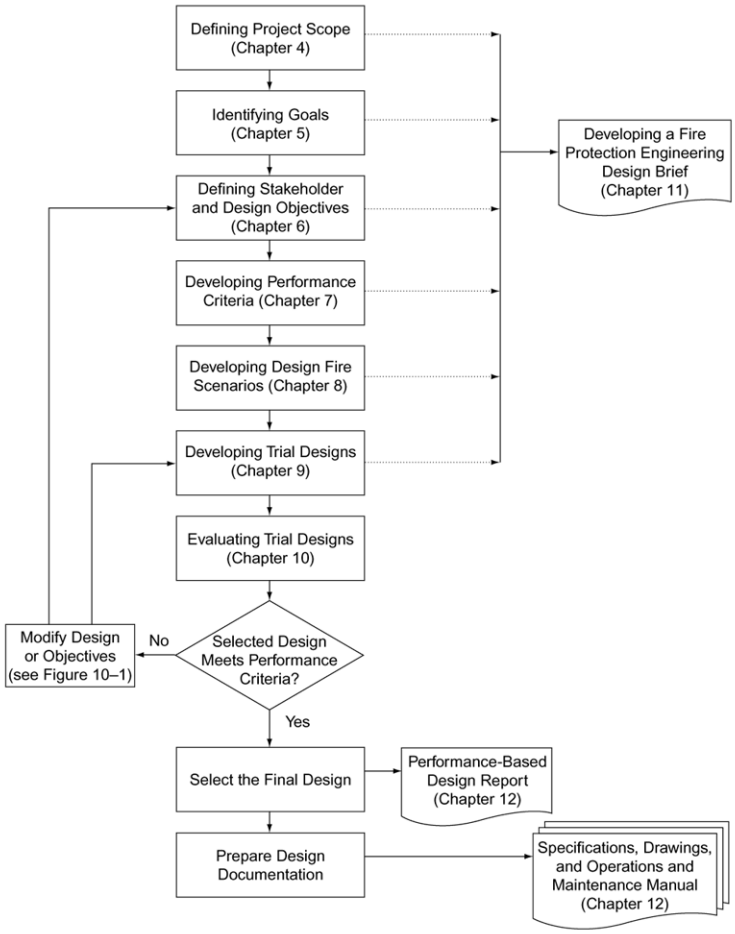
The Task Group has developed a process that guides the fire protection professional in logical design sequence. By following this sequence, the fire protection professional can assure the integrity of the performance-based design. In short, the process makes it work.

Documentation supplies a major component of the process. Each step in the process flows to a point of documentation. This allows the documentation to "close the loop." At any point during the performance-based design process, a peer can review the documentation and see a complete record of each design decision.

Figure 3-2 provides a graphical representation of the process.

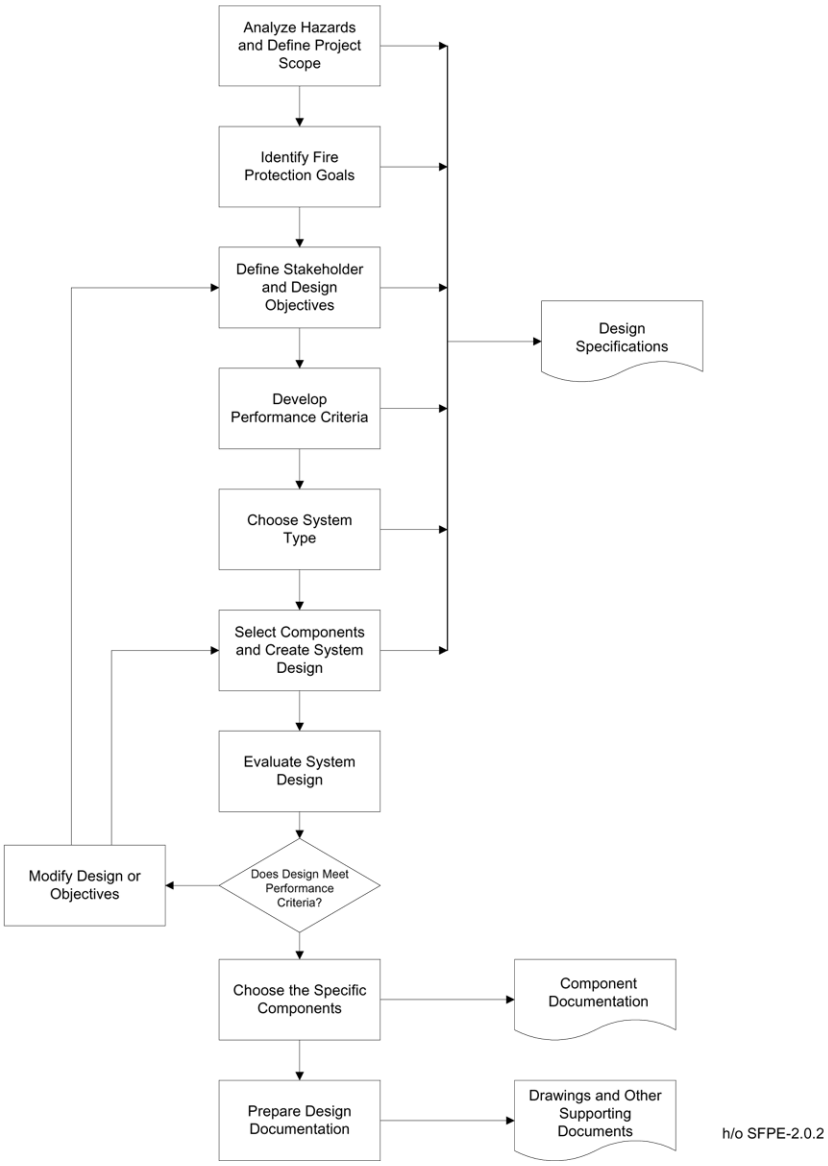
SFPE Guide to Performance-based Fire Protection Analysis and Design of Buildings

Figure 3.2



Now, fire alarm system design professionals can take a valued lesson from the work of this SFPE Task Group. By adapting this performance-based design process to the specific task of fire alarm system design, the same kind of process can help assure a thorough and competent fire alarm system design.

Recently, a committee chaired by John M. Cholin, P.E. of J. M. Cholin Consultants, Inc. has done just that. In developing the new SFPE Fire Alarm System Design Seminar, they have adapted the performance-based design process and applied it to fire alarm system design. Their graphical representation looks like this.



h/o SFPE-2.0.2

In the next issue of IMSA Journal, I will discuss how to apply this performance-based design process to designing fire alarm systems. I think you will find the application this process to fire alarm system design both helpful and quite interesting. I believe you will see particular benefit in the level of documentation that this process provides.

IMSA member Dean K. Wilson, P.E., C.F.P.S., works as Senior Engineer in the Windsor (CT) office of the fire protection engineering and code consulting firm, Hughes Associates, Inc. (www.haifire.com). The opinions expressed in this article are strictly his own. You can reach him by phone at (860) 687-1009; by FAX at (860) 687-1308; or by e-mail at dwilson@haifire.com.