tennessee DESIGNlines
THE TENNESSEE BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS
Tennessee Department of Commerce and Insurance Spring/Summer 2002

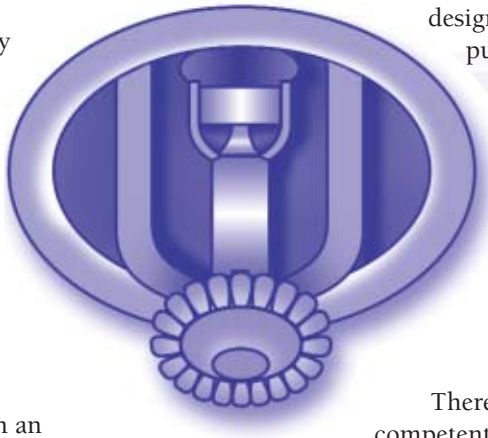
How COMPLETE Is Your Design?

by *Ted Wynne*, P.E.,
Associate Engineer Member

This article is about Fire Protection Sprinkler System (FPSS) design, but I hope that all registrants will read it, because there is a common thread to consider as we go about our routine efforts to properly communicate our designs so that others may build what emanated from our brains.

I'm often asked what is the quality standard of completeness for design drawings. My standard answer is rather utopian, yet should be what we strive to accomplish: "Your design should be done in such a way that the person(s) constructing what you conceived need not make design decisions." Remember that registrants design; contractors build and install.

A design apathy regarding FPSS began quite some time ago, when engineers treated the discipline like an extension of plumbing design. This was a colossal mistake! This attitude led to less and less critical information getting on the drawings. Plans review officials could not discern whether the designs, which they were reviewing, would work. The result was that contractors began to provide this information because they were forced to become very proficient in FPSS design. Their proficiency, however, had a purpose: to provide an efficient design to minimize system cost, resulting in a competitive edge to increase business.



The overall tendency of the reviewing official was to not necessarily reject the registrant's design-however lacking; but to wait for the contractor's shop/fabrication drawings to reach some degree of confidence that such an important life safety system would indeed reliably operate as intended. This thrust of design responsibility onto the contractor eventually led to a state statute, currently administered by the Tennessee State Fire Marshal's Office (SFMO), which granted design responsibility to a properly trained "Responsible Managing Employee" (RME) of a legally licensed Sprinkler Contractor. This legislative action occurred in the late 1980s.

A short time after this event, the Architects and Engineers (A&E) Board issued, with the help of the SFMO, design criteria for FPSS to registrants. Regrettably, these criteria were rarely followed.

The A&E Board feels that FPSS design is within the practice of engineering. Although the Board is not questioning the aforementioned Sprinkler Contractor's Law, it feels that the registrants' designs must remain relevant. It was never intended that the "Responsible Managing Employee" supplant the engineer. Nor was it intended that the RME offer design services to the public or others who were not his/her employer. Consequently, the engineer must provide meaningful design for the design/bid delivery system.

There are already many competent engineers in our state who are capable of FPSS design. They are being underused because we as registrants have gotten away with incomplete designs. The SFMO, in cooperation with the A&E Board, will reject such designs.

In order to "qualify" more engineers in this discipline, seminars are now being developed and offered by the Tennessee Society of Professional Engineers (TSPE). Watch their website and notices for timing and location (the Board website contains a link to the

cont. page 10

In This Issue:

ALLEGATION: Re-roofing of public advertisements.

How Complete…*cont.*

TSPE website). If your design services have included FPSS in the past, and you are not so sure that you have measured up to what is expected, we urge you to brush up or stop offering a substandard design. Please make no mistake; this is a competency issue.

The criteria and information needed in our design of FPSS is contained in NFPA 13 and associated codes. Please note that hydraulic calculations are included. This might be disappointing to those who have tried to do a complete job, but current water data and hydraulic calculations are necessary for the plans reviewing official to have confidence to determine if the engineering system is workable, and how much margin of safety is utilized. Furthermore, if your design is changed in the field, it must be documented so that codes officials can maintain system records.

We trust that all registrants will take this to heart and produce acceptable designs in this regard, for if we don't, what other phase of our design work must we give up?