

## **Submittals that Smack of Success**

**by Dean K. Wilson, P.E.**

“Do you have time for me to drop by your office?” I easily recognized the voice on the other end of the phone call. As the plans examiner for a large suburban community, we had met several years ago at a seminar. Over time we had become good business friends.

“Of course,” I replied. “I plan to be here all afternoon.”

A short time later I saw my friend in the video surveillance monitor as he walked up the walk. I greeted him over the intercom even before he had a chance to push the door bell. As soon as I opened the door, he wordlessly handed me a single sheet of paper.

Taking it from him I spied the letterhead of a well-known fire alarm service company. The document had the title “Fire Alarm System Submittal.” The body of the document read, “For the sum of Three hundred and eleven thousand dollars and 82 cents, we will provide a fire alarm system for the property at (the address of the property).”

I stared at the document, glanced up at my friend, and back down at the paper.

“That’s it,” he said. “That is the sum total of their submittal for approval. I knew if I told you about it without showing it to you, you just wouldn’t believe it.”

Over the weeks that have followed, I have thought often about this single paragraph submittal. I have been trying to process whether the submittal represents the height of arrogance or the height of ignorance. I have yet to decide which.

The documentation that a contractor submits to the authority having jurisdiction will either help guarantee a successful acceptance or doom the best intentioned proposal to failure. It seemed prudent, since I was so exercised about this one paragraph submittal, for me to share what I believe a contractor should include in a submittal. And, of course, what an authority having jurisdiction should expect, even demand.

The contractor should supply a narrative that explains the overall protection goals of the stakeholders in the project, the objectives that derive out of those goals, and the way that the fire alarm system will address those goals and objectives. Naturally, the goals and objectives will take into account Life Safety, Property Protection, Mission Continuity, Heritage Preservation, and Environmental Protection.

The narrative should provide an overview of the system architecture and describe the factors that helped the contractor choose the particular design. Where a qualified engineer has developed specifications, the narrative should relate each element of the design to the specifications, item-by-item.

The contractor should supply a comprehensive parts list that states every component in the system, the number of each component used, and verify that each component has been listed by UL or FMRC for fire alarm system use.

The contractor should also supply an input/output matrix that shows the interaction between each element of the system. He or she should include a narrative sequence of operations to describe what happens when each particular type of initiating device operates. If different areas within a building have different operational sequences, the narrative should describe each sequence.

The contractor should include a system-specific point-to-point wiring diagram. Most often this will take the form of a riser diagram, showing the flow of the system throughout the building.

This gives the plans examiner the opportunity to view the overall system architecture. And, don't forget to indicate the type of wire or cable used for each circuit.

Where a modular system uses particular wiring configurations, the contractor should submit detailed drawings of each configuration and reference these on the riser diagram.

The contractor should include plan views showing the occupancy of each portion of the property, the location of each initiating device, notification appliance, system interface, ancillary relay, or other system component. These drawing should show raceway, conduit, or cable locations and specify the number of conductors.

Details on the drawings should specify mounting heights of notification appliance and give any other unique physical parameters for the initiating devices, notification appliances, or other components of this particular system.

If computer-aided drafting software is used to generate the drawings, the contractor should consider providing separate drawings showing the notification appliances where a shadow surrounding the appliance icon shows the expected coverage of the appliances.

The contractor should include the standby battery calculations showing the current draw under a normal standby condition and under an alarm condition. The contractor should also include loop resistance calculations for all initiating device circuits and signaling line circuits; and voltage drop calculations for each notification appliance circuit.

Where the specifications have called for the numbering of each conductor with a unique identifying number, the contractor should include a conductor numbering scheme and mark on the drawings all junction points where conductor numbers shall appear. This provides an enormously valuable tool for future trouble shooting of the system.

The contractor should include manufacturer's data sheets for each system component, including the wire and cable used to interconnect the system. Each data sheet should have careful annotations to indicate which components comprise this particular system.

The contractor should include an initial copy of the Record of Completion filled out as much as it can be at this point in the installation process. Where the system will include a connection to a listed central station fire alarm operating company to provide central station fire alarm service, the contractor should include a copy of the application to UL for the UL Central Station Fire Alarm Certificate, or a copy of the FMRC placard that will be posted at the protected property.

Now you may not agree with all of my suggested submittal requirements. In fact, you may be able to add your own preferred items to my list. But answer me this: Does the level of detail that I suggest a contractor include in a submittal exceed the single paragraph submitted to my friend? You bet it does.

And it is just such level of detail that helps assure the successful acceptance of a fire alarm system design. A design that will serve the end user well throughout the life of the fire alarm system. A submittal that smacks of success.

After all, isn't that what this is really all about?

---

IMSA member, Dean K. Wilson, works as a senior engineer for the fire protection engineering and code consulting firm, Hughes Associates, Inc. in their Windsor, CT office. He holds registration as a licensed professional fire protection engineer and certification as a Certified Fire Protection Specialist. You can reach him at by phone at 860-687-1009 or by E-mail at [dwilson@haifire.com](mailto:dwilson@haifire.com)