

What's the Point?

by Dean K. Wilson, P.E.

***Question:* I don't know whether or not you take questions from owners of businesses or not. I found your name and articles by searching for the words "fire alarm system" using google.com.**

I am the president of a bank. I have recently authorized the construction of a new basement-and-two-story bank building in a suburban business park. The building will house about 30 employees and have a normal occupant load of no more than 60.

My architect recommended that I hire a respected MEP (mechanical, electrical, plumbing) engineering firm to design those systems for my new building. I did so, expecting to receive an excellent design. I submitted the completed design to an electrical contractor, who, in turn, submitted the fire alarm design to a local fire alarm/security company.

Imagine my surprise when I received a detailed letter from the fire alarm/security company stating significant omissions in the design, including "...the complete lack of audible and visible fire alarm notification appliances." The writer of the letter gave detail after detail of code-required items that the engineering firm did not include in their design.

The problem got even worse when the local building inspection agency refused to comment on the alleged design deficiencies because, in their words, "...the building code does not require a fire alarm system in your building."

I took that information back to the fire alarm/security company and they showed me in the building code where my inclusion of a sprinkler system required electrical supervision

of certain sprinkler control valves and could include a waterflow alarm connection to a fire alarm system. They also showed me that the building code requires any fire alarm system to meet the requirements of the code.

When I confronted the engineering firm about the omissions in their design, they pointed to one of the notes on the drawing that stated: “Irrespective of the design shown, any installed system must meet the requirements of the building code and the *National Fire Alarm Code*.”

What in the world is going on?

Answer: Wow! Well I'm afraid you've been had. The fire alarm company has given you correct information. The money you spent on the fire alarm design from the engineering company bought you nothing. Here's what I think happened.

The engineering firm probably has some expertise in ordinary mechanical, electrical, and plumbing design. At the same time, they have a decided weakness in fire protection systems design. I would ask if they have a licensed professional fire protection engineer on their staff. Then, I would try to find out some details concerning his or her background. I suspect you will find that this engineering firm does not have a licensed fire protection engineer on staff.

Based on the type of occupancy, the number of occupants, and the number of floors in your building, the *International Building Code-2006* (for example), in section 907.2.2 Group B, only requires a manual fire alarm system when the building has an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge. An Exception permits the omission of the manual fire alarm system if the building is equipped throughout with an automatic sprinkler system and the alarm notification appliances actuate upon sprinkler waterflow.

Your building, as you describe it above, does not require a fire alarm system. However, you have elected to install automatic sprinklers, even though the building code does not require them either. This brings into play the Exception to section 901.2: “Any fire protection system or portion thereof not required by this code shall be permitted to be installed for partial or complete protection provided that such system meets the requirements of this code.”

If you elect to install fire protection in a building, the *International Building Code-2006* requires you to install such systems following the requirements of the *Code*. Because you have elected to follow the requirements of section 903.4.1 and connect the alarm, supervisory, and trouble signals of the automatic sprinkler system to a remote supervising station through a fire alarm system control unit, that fire alarm system must comply with the requirements of 907.2 and all the other pertinent requirements in section 907, including 907.9 “Alarm notification appliances.”

Part of the reason why a model building code, such as the *International Building Code-2006*, requires that fire alarm systems follow the requirements of NFPA 72, *National Fire Alarm Code*, is so that such systems will have consistent features and offer a consistent level of performance. The well-respected consensus standards system of the National Fire Protection Association has created a catalog of codes and standards that address every facet of fire protection. These codes and standards offer very practical, very cost-effective, requirements that will help assure each fire hazard at a facility has an appropriate level of mitigating fire protection.

It seems nearly incomprehensible to me that any engineering firm would purport to offer designs created by someone who has little, if any, knowledge of the appropriate codes and standards. As an owner of a building, you should not have to possess the expertise to supervise the design you have commissioned a professional engineering firm to create.

“Let the buyer beware!” If you purchase engineering services from a company that does not employ a licensed professional fire protection engineer to review the fire protection designs that his or her firm provides, what’s the point? I doubt if they offered their design at a bargain basement price because they weren’t using a qualified designer. So, you didn’t even begin to get that for which you paid.

I am also amazed that the local building code inspection agency would not comment on a matter the *International Building Code-2006* clearly addresses. If you decide to install fire protection in a building, that fire protection must meet the requirements of the *Code*; even if the *Code* does not require the protection.

I wish you well as you open this new branch of your bank. I hope that the lesson you have learned you will share with your peers in the banking industry.

To obtain competent designs, hire qualified professionals who value and who follow the national standards, particularly the national consensus standards of the National Fire Protection Association.

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