



CHIEF'S FILE CABINET

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You Talkin' To Me!

How can anyone forget Robert DeNiro's famous line from the movie Taxi Driver, "You Talkin' to Me!?" His expression of hostility that someone would be presumptive enough to tell him something still stands as an icon of arrogance and indifference in minimizing the listening skill side of a person in a leadership role.

Yet, most of us want people to be talking to us and telling us what we need to know so that we can avoid making errors in our own performance. Now here is an idea for you. What do you think would happen in the ability of a fire department to cope with an emergency if we could get buildings to talk to us?

Yes, that is right get the building to talk to us. Whenever we pull up in front of a fully involved structure fire, the building often does talk to us. Many of you have probably taken classes on "how to read smoke." One of the reasons why we study fire behavior at a basic recruit academy is know the difference between ignition, flashover and back draft. Buildings are already talking to us except that they are using predominately sign language. And it requires a certain degree of experience and expertise to really understand the signals.

But what if we could get that building to talk to us in plain English? What I am referring to is to develop instrumentation and telemetry inside of a building that could communicate to the outside of that building so that emergency operations personnel would not have to guess about what was going on by looking at the color of the smoke the smell, smells and odors emanating from that smoke or for faint glows down at the end of hazy hallways. The technology to do that sort of thing is actually on the shelves today.

What I am referring to is the idea that technology in the fire detection, fire alarm and fire suppression built in systems has the ability to collect information and to transmit it digitally right now. If you don't think so, all you have to do is look at the fact that much of the information being collected by building systems today can easily be forwarded to a command center in a very complex occupancy. Moreover, many of these forms of technology are being transmitted to alarm centers. In some very sophisticated fire departments this information is being transmitted directly to the fire alarm center. It not only can be done but more importantly it needs to be done. And it needs to be taken to an entirely new level at some time in the future. That level is for the building to talk directly to the responding fire companies.

Back in the 1980's I wrote an article for American Fire Journal entitled, "Fire Service 2001." In that article I postulated that it would be conceivable that fire alarm systems could be programmed to communicate status of heat, smoke and flame conditions in a building to the a computer at some location. We have



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swept past that capability so rapidly that many in the fire service have failed to realize that it is there to take advantage of.

We are all ready getting into the wireless era of transmitting information to our fire alarm centers to our fire trucks. Just how much more difficult would it be for us to take that to one more step. How about having the building communicate with a computer through wireless technology?

Where this fits into the big picture of things is the fact that firefighting operations are very much dependent upon fact. The more facts that one has available to them to be able to address an issue the more likely appropriate decisions will be made to render the situation harmless. In addition to that one of the biggest issues that we are facing in the fire service today is that of firefighter safety. It is no longer “cool” to risk a firefighter’s life just to save a piece of property. Granted, there are fire service philosophers that are on both sides of this issue but for the most part firefighter safety is now placed at the same level of priority as occupant safety.

So what is possible to be done? Let me just set a framework for this discussion. We all recognize that there are various forms of levels of built in fire protection in the structures in our community’s inventory. The vast majority of single-family dwellings have a very low level of technology inserted to help the fire service. Basically most of these are limited to smoke detectors and in some more advanced communities the use of residential sprinklers. There is also a level of community fire problem in which there is very limited technology inserted in these buildings and subsequently not much information is available. What we refer to as existing non-conforming buildings. For short these are buildings that were built a long time ago that don’t conform to any of the existing codes.

The next groups of what I call are calculated risk buildings. These buildings are built fairly recently and have a lot of technology built into them. They have alarm systems, they have smoke detection, heat detection, built in sprinklers, stand pipes, electrical generators exit lighting, etc. etc. For purposes of this discussion it is this last group of buildings that I believe has the greatest potential for making firefighting a lot safer and a lot more effective.

Visualize if you will what would happen if we were able to develop an interface between a sprinkler system and a computer that would access this information wirelessly that would tell us what the status of the system is. In the good old days when we pull up in front of a building and you hear that loud clanging of an exterior bell you knew water was being discharged somewhere. But in those days you had to go find that discharge. What would happen if in fact telemetry would tell us which zone and for that matter which sprinkler head was actually being discharged? Wouldn’t that aid in the size up and decision process. How many of us have gone on an alarm that often affectionately is referred to as “smells and bells.” This is when someone smells the odor of smoke and bells are being activated yet when we pull up in front of the building there is nothing to guide us as to tell us where the smell is coming from or where



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the bells are actually ringing except on the exterior of the building. What if the telemetry was available to tell us exactly what the smoke opacity was in the building in specific compartments and then simultaneously which zone or which specific device had been activated?

Let's take this concept one step further. What if you were able to pull up in front of the building and have this information available and simultaneously have a floor plan of that particular structure right on the screen of the first in officers on board computer and duplicate it on the incident commanders screen as he or she arrives on the scene? If this telemetry was linked together with an appropriate interface it is conceivable that telemetry from the inside of the building would give you a size-up that would so specific one would not have to worry about excess use of personnel just searching for the source of ignition.

Of course discussion of this type raises some other questions that I know are probably going through your mind. One of the first of these is just how costly would this kind of technology be? Another would be just exactly who is going to benefit from all of this and are there any negative consequences of relying on this kind of information.

I don't have real good answers on the cost factor myself. But, I do know that as microelectronics is continuing to be developed and instrumentation has been micro-engineered the cost for this type of technology is increasing almost daily. When it comes to examining the benefits I think there are many benefits to be derived from this kind of technology. First and foremost most of professional firefighters have recognized early on in their career that the earlier that we receive detection and warning of an event the more likely we are to prevent that fire from going to flashover. Quite frankly, all of the argument and debate over response time whether it be four minutes or five minutes is sort of based on an assumption that we don't have a clue when most fires actually start. We are basing the response time criteria of the fire service essentially on the bet that most fires have gone to open flame production by the time that somebody finally notices them and calls for us to get there. Therefore, the greatest benefit to be accrued from this kind of technology is giving the fire service a fighting chance for actually saving a piece of property, the tax revenue that it generates and the lives that may be of risk.

The insurance industry could certainly benefit from this. The idea that we could get on scene and do something about calculated risk is bound to have an impact on the loss of property in these highly calculated risks. I believe that if there are benefits to be derived from installing this technology in the first place then we could quite possibly double or triple the effectiveness of this technology if the responding fire service has access to this kind of information. And then of course one of my priorities is that of firefighter safety. If the building can talk to us then we are likely to be able to talk to the building. It is conceivable that this kind of technology could lead to the ability to actually perform certain functions without endangering firefighter's lives to achieve them. What I am referring to is the ability to open and close doors or to contain smoke spread and perform certain types of ventilation activities.



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This article may sound a little bit like science fiction. But when I referred to it in 1980 it was really considered to be far out. Today the technology is available to do all of this. It may well be that in the next decade we will have incident commanders pulling up in front of a building, activating an 800 number or an IP address and in effect inviting the building to start talking with that command post. When that happens, it is no longer science fiction.