Chasm Communications

The Chinese have a proverb that says that you cannot leap a giant chasm with two bounds. If you leave one canyon wall you must land on the opposite canyon because coming down anywhere in between is going to be catastrophic.

In fire protection we do have a chasm. It is between fire suppression and fire protection. In many communities the chasm is nothing more than a slight rift and in other cases it looks like the Grand Canyon. In the real world when there is a chasm and people have to get from one side to the other there is a very simple technique. You build a bridge.

What got me to thinking about this particular phenomenon was a recent discussion about an issue that is affecting the fire service. The issue is that of lightweight construction. This is not going to be an article about the operational aspects of lightweight construction. That is preserved for other discussions. However, I do with to address an issue that is emerging very quickly from the phenomenon of building technology and fire department operations. The gap between the knowledge that is in existence to approve and implement technology is increasing with respect to how much the fire ground personnel understand about what they are confronted with.

That was a long sentence to say basically this. There are building materials that are being approved and installed that firefighters know nothing about. The way they are finding out about them is essentially when they run into them in the field and they see a set of circumstances that doesn't match the model in their mind of the way things ought to be. In actuality there is a parallel to this process. One of the best parallels I could describe is what is going on in the automotive industry. The way that cars are being manufactured today is drastically different from the way it was fifty years ago. As technology advances it increases the risk factor for emergency services workers in direct proportion to their lack of knowledge. When all of the cars on the highway were Model A's the concept of cut and rescue was pretty primitive. Today a fire department vehicle that is approaching a cut and rescue on the highway has almost as much of a possibility of the firefighter becoming a patient as they do of extracting the patient unharmed.

The solutions must be based upon the problem. And herein is the problem statement. If technology is approved and allowed to be installed and the fire service is not aware of it then it may take a course of action that is counterproductive. You can apply that to almost any form of technology that we in the fire community must cope with. I just used an analogy of vehicles, but how about the problem with hazardous materials?

In the field of fire prevention there are a multitude of places in which this phenomenon can occur. I initiated this discussion of the basis of building materials. However it is also true with built in fire technology, fire alarm systems, detection systems, etc. Technology is moving at a very rapid rate. The concept of information obsolescence is especially pertinent in fields in which technology has a competitive aspect. In general our society is moving towards a quicker, faster, cheaper solution for everything that we have taken for granted in the past.

If you couple that phenomenon with the concept of performance-based requirement an interesting set of circumstances emerges. In short, with a performance requirement it is not important how something is done as long as it is capable of meeting whatever criterion has been established. And if that criterion can be achieved by any specific technology it may be authorized to be installed, when in fact there are attributes and characteristics of the technology that cause it to not be readily understood by emergency service workers.

I started this article off by with the idea of talking about a couple of very specific set of circumstances. As I began to research for the article I found out there were many more examples than I was led to believe. Before I get to those examples I would like to propose a hypothetical example set of test questions for you to review. They are as follows:

a. What impact has the energy conservation movement had on the design of buildings?
b. What impact on building design has the public's concern over security caused?
c. What changes in building materials has been created as a result of going from a prescriptive code to a performance code?
d. What effect has economics had on the designs and construction of buildings?
e. What role does innovation play in changing the built environment?

Contained within each of those questions are real world examples of things that are happening around us that we see in fire prevention a long time before they ever have an effect on the fire ground. It is my personal belief that fire prevention bureaus and the plan check and construction inspection phase is more important to firefighter safety than any other single component in fire prevention. Granted, we place a lot of emphasis on occupancy protection to remove hazardous conditions, but a new phenomenon is the fact that if a building is built without fire suppression operations understanding the complexity of the technology. They maybe even endangered by that fact than the hazards put inside of the building.

There is a current debate inside in the fire community about at least one element of this phenomenon that is on the increase. That is the use of lightweight construction materials. If one were to take a look at the magazine articles being written on this topic, you would think that this was a problem that has been created overnight. However, the review of the literature and examination of the real world would indicate that lightweight construction has been a goal and an objective of the building industry for

decades. There is even a process that has been established to approve products that can go into structures. When they were approved and they were examined by the fire prevention bureaus, those long, long years ago, that information in many cases was never transferred to the fire operations people so they can pay attention to it.

This is not much different than what was going on in the automotive industry. I call it the law of unintended consequence. It is when something is done and nobody pays attention to it until something goes wrong. The challenge for the fire service is to close the gap between fire prevention and fire operations. How do we reduce the consequence of such phenomenon? Remember that bridge that I talked about earlier? The bridge between the two sides of the road is information exchange. Fire prevention bureaus should be paying very close attention to changes in technology and be in a position to be able to convert that information into meaningful awareness by the operations division. On the one hand this could be as simple as dialogue. But it actually requires a more specific effort. One potential solution is to institutionalize pre-fire planning as a relationship between the bureau and operations rather than just a walkthrough of buildings after they have been constructed.

Many fire departments have pre-fire planning programs. However, many of those pre-fire planning programs start once the building is occupied. This phenomenon of technological advance means that we should start our pre-fire planning efforts during construction. This is when we get a chance to examine the physiology of a building.

Now let me go back to a couple of specific examples. I was recently informed that because of the environmental concerns and energy conservation, buildings are being much more heavily insulated and secured against air leakage than they ever have been before. What does that mean to fire suppression people? On the one hand it may mean that these kinds of buildings are going to hold smoke and confine heat more efficiently than they have ever done before. Perhaps contemporary methods of ventilation will no longer work in buildings in which energy conservation is a top priority.

What about a shift in building materials? There are new products on the shelves that make it virtually impossible to break out a window. The quest for security in a lot of places has resulted in the development of a glass that contains a laminated interior panel that makes it impossible for a firefighter – or a burglar or for that matter anyone to be able to penetrate that glass using a forcible entry tools. There is even a new type of drywall that is being proposed that contains a very thin sandwich panel that makes it almost impossible to penetrate. What are the implications of these technologies? How about cross ventilation and looking for confined fire, i.e. overhaul.

The list of these examples could go on and on. Unfortunately, if I provide you with a comprehensive list, then there are those who would believe that that list was complete. That is not my point. It is exactly

the opposite of that. No matter what we think we know right now, it will be rendered obsolete by the process over a period of time. And the fire prevention bureau is the recon unit for the war against fire.

In discussing this phenomenon with some fire prevention people, there is an attitude that falls into one of two camps. The first of these is to simply prohibit anything that the fire service doesn't know how to cope with. The second is the idea that once something has been approved by society in general we must adapt in order to protect ourselves. There is a high degree of probability that those of you reading this column fall into one of those two. The box I am more concerned about that people often fall in is that they don't know enough to be able to have an opinion.

There is a fourth box, entitled people who don't even have a clue.

Fire prevention bureaus have the opportunity to provide a considerable amount of service to their department but only if they maintain a high degree of curiosity and professional focus upon the acceptance and implementation of technology. A few individuals are already lamenting about the fact that they have got their hands full as it is. Now I am asking them to spend more time hearing this with the guys and gals downstairs or in fire stations that are twenty miles away from headquarters. And I will admit that I am suggesting that, but I am also very practical about it.

The manner in which this needs to be encouraged is not something that happens overnight. My suggestion would be that this kind of a concept be embraced initially as nothing more than dialogue between operations and fire prevention all over the as built community. Take fifteen minutes in a staff meeting and talk about what is going on in the community. Battalion chiefs and suppression ought to take fifteen minutes to talk to their fire captains about things that are going on.

The entire purpose behind this concept is to not make more work but rather to work smarter. In a recent discussion about this particular topic, I was advised by one fire captain that he knew more about what was going on in his community by periodic visits to Home Depot and Lowes hardware than he was learning from his own fire departments training division. That is one of the challenges. We need to convert this information on technology adaptation from a manufacturer or salesmanship perspective into an operational perspective.

It is not like we haven't done this before. What is most significant is the fact that it is being required of us more and more at the same time the fire service is losing its grip on fire suppression elements overall. What I mean by that is simply this. More and more fire agencies are going to fewer and fewer fires and spending more of their time on emergency medical services. Before anybody believes I am getting ready to pick a fight with EMS that is not the point. What is the point is the fact that the idea of a firefighter gaining a great deal of experience by fighting fire in older occupancies which leads to his ability to fight fire effectively in the new occupancies is no longer a truism.

We have an entire spectrum to cope with this situation. We have fire marshals who know that new things are being incorporated into buildings, we have chief officers who are approving processes that are somewhat disconnected from their own training division. We have training chiefs who are focused more on the logistical requirements of training rather than seeking new curriculum. We have incident commanders who may or may not possess knowledge of specific buildings any longer and last but not least we have the combat firefighter who may or may not know exactly what they are looking at under fireground conditions.

This is a powerful challenge. If we error in coping with this challenge there are consequences. This particular article was aimed at the authority having jurisdiction, i.e. the fire marshal and chief of the department who represent one side of the chasm that must be leaked. If we don't start building bridges and maintaining those bridges there is a possibility that the chasm will grow wider and that the severity of consequences will increase over time. Let's start building that bridge tomorrow morning.