



CHIEF'S FILE CABINET

Ronny J. Coleman

I Wonder What Ben Would Say

Over 250 years ago, Benjamin Franklin, writing anonymously, as Poor Richard, stated, “an ounce of prevention is worth a pound of cure”. In that era he wasn’t kidding. America’s business and industry was growing by leaps and bounds, yet fire protection was a primitive science. It was bucket brigades and community spirited volunteers when a fire broke out that made the difference. Much has changed in the field of fire suppression technology and fire prevention methodology since Benjamin Franklin scribbled those prophetic words – but they are just as true today as they were then.

One of the challenges that communities have in executing effective fire prevention is to assure that adequate fire and building codes are in place. That is a basic assumption. But equally important is the idea that somebody must enforce them. Benjamin’s cliché might be updated by stating, “An ounce of enforcement is worth a ton of rhetoric”. Unfortunately, fire prevention is not always a top priority for funding in many communities. Nor, is it a high priority for implementation by fire suppression forces. Fire prevention is sometimes referred to as “the ugly stepchild” of fire protection. Nonetheless, it can clearly be demonstrated that the increase in our success rate in preventing large loss fires in the United States can be attributed to our modern fire and building codes. And, there are many fire chiefs and their agencies that take fire inspection responsibilities very seriously indeed.

Recently the headlines spelled out a tragedy that has repeated itself in many communities over the last 100 years. The particular fire that we are referring to was the Station Nightclub in Providence Rhode Island. On March 3, 2005 this fire resulted in a major loss of life. It was not the first fire of such proportions and it will very likely not be the last either. Typically after such a fire there is a public outcry that results in a temporary focus on the reasons for this unnecessary loss of life. Then there is a period of silence and the public forgets. However, the fire service doesn’t usually forget. We make a change in the codes to try and keep it from happening again.

Some call it the catastrophic theory of reform. This fire highlighted this phenomenon once again. It placed renewed focus on assuring that fire departments place more emphasis on prevention. But, what has changed in the basic codes to prevent it again? If the building had been up to code in the first place, maybe it would not have happened. This time the theory of reform focused upon improving the inspection of the problem as being one of the issues

The Commission on Fire Accreditation International (CFAI) has been collecting information on fire prevention bureaus as part of the self-assessment and accreditation process for almost twenty years. CFAI recognized that fire departments need as much help as they can get in achieving their fire prevention goals and objectives as part of a systems wide approach. And, Fire Chief Don Oliver of the Wilson North Carolina Fire Department had just completed a major GIS mapping project that employed



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computer technology at the fire station level to map risk. Thirdly, there was an opportunity to leverage the technology currently being used to train both the military and law enforcement called virtual reality through contact with a software company that had created many programs of a similar nature.

The convergence of these three activities resulted in the creation of a revolutionary new way of training firefighters to conduct building inspections. The project is called Fire Inspection Resource Exercise Simulation (F.I.R.E.S.) The program is revolutionary because it is based upon one traditional concept, i.e. professional standards, but it is unique in that it utilizes virtual reality and is a self paced – distance learning – adult learning model.

The target audience of this project is not the Fire Marshal. It is aimed at the company officers and line firefighters who constitute the bulk of our fire protection resource pool. It also includes providing the basic information to entry-level fire inspectors and civilian inspectors who lack a firefighting background in conducting basic inspection activities.

The program was funded under a federal grant. The US Fire Administration granted the award under the “assistance to firefighters grant program” (AFG-EMW-2003-FP-01915). As of the writing of this article two grants have been awarded that are being coordinated. They consist of Wilson North Carolina and Ionia Michigan. Both are accredited fire agencies and are the basis for the partnership that created the program.

The partnership is unique. The grant was awarded to local fire agencies. In order to achieve nationwide focus for the distribution for the program the Commission on Fire Accreditation participated in managing the project. The third partner in the development of this innovative approach was Reality Response. Reality Response is a leader in the development and deployment real-time, desktop and multi-participant virtual reality simulations. For example, this group developed the shoot – don't shoot simulation for law enforcement, and created the virtual reality program to train airport security screeners for the TSA.

The partnership went beyond that however. The International Code Council was approached to provide the basic information for the development of a curriculum on the basic principles of a fire and building code. The core curriculum was centered on the use of the Inspectors Field Guide published by the ICC. The publishers of major texts were approached to determine if they would be supportive of using their texts as references. A group of subject matter experts (SME'S) from local government, and fire prevention bureaus were asked to participate in the development of an intensive evaluation of what risks and hazards are in buildings that need to be evaluated and removed by fire inspectors. Several ICC staff and allied members were involved in the original course design such as Page Dougherty, Kevin Scott and Jim Tidwell. Major business owners of the types of occupancies that were used in the program



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were approached and asked to provide the CAD drawings of their buildings to create a virtual environment. These have included Marriott, Lowes and Appleby's

The result of all of this was the creation of a student workbook that is based upon NFPA 1031, the fire inspector's standards. The curriculum also leverages existing information from both the United States Fire Administration and special governmental studies that have been developed on fire and life safety over the last ten years. These include, but are not limited to, the technical reports on major fires, NIOSH studies, and other informational reports and documents. For example, in the work sessions all of the NFPA standards that apply to basic fire prevention such as pamphlet 10, and 13 are referenced.

The curriculum for Wilson consists of 33 learning modules that are based upon inspection skills to deal with eight specific occupancies that have been recreated in a virtual environment. These occupancies include:

- A Grocery Store
- Office Building
- Assisted Living Facility
- A Large Warehouse Store
- A Hotel
- A Restaurant
- An Apartment Building
- An Auto Repair Shop

These would be typical occupancies that a company level inspector could be responsible for. What is not so obvious is that each of these occupancies also represents a scenario that there has been significant loss of life to either firefighters or occupants of the buildings.

Phase II of this project involves creating 20 more session guides and the development of eleven additional virtual reality occupancies. This list is not complete yet but does contain some of the following:

- A Hospital
- A Jail
- A Fraternity House
- A Church
- A School
- 2 Hazardous Materials Locations
- A Moderate Hazard Business

Because the readers may not understand what virtual reality is a brief explanation might be in order.



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Virtual reality is a computer technology that allows the creation of a “synthetic environment” that an individual using either keystrokes or a joystick can “navigate” around on the inside of the virtual environment. The most graphic example one could give is the games that are widely used as a source of entertainment in our modern world. The virtual reality world is a digitized version of reality. For example, in the synthetic environment a building can be constructed based upon CAD drawings that has exactly the same dimensions and textures of the real world. The inside of this building can be populated by “art objects” that reflect such things as furniture, decoration, etc. Once the digital environment has been created some of the components can be made to be actionable. This term means that the person navigating the system can do things with the object. For example, a door can be made to open and close. A window can be made to open and close.

One of the roles of the subject matter experts was to identify the thousands of items that belong in a virtual reality environment. Then, the SME’s had to determine which were going to be actionable and furthermore determine what state or condition the actionable item is to be found in when it was viewed by the person navigating the virtual reality terrain. For example, a fire extinguisher on a wall could have many states. It could be missing. It could be compliance. It could be out of compliance. It could be the wrong extinguisher for the location, etc. Once a database was established for all of these items they were programmed into the environment to be random. Simply stated this means that if you enter the environment one time you will find a set of conditions that may not be there the next time you conduct an exercise.

The curriculum is designed to be delivered right at the firehouse level – or on the desktop – or even in a college classroom. The system is based upon the completion of a task book that identifies that the student has completed the workbook and conducted the exercises under the supervision of someone in the organization with oversight responsibilities. For example, in the test that will be conducted in Wilson North Carolina the system is being designed so that fire captains can oversee this process at the fire station level.

The benefits of this type of program are pretty straightforward. First off it is a very effective method of reaching a large target audience in a very short period of time. It is so portable that it can be done in the firehouse, at home, or in any environment in which a person has access to a computer. As a result it expands the professional development opportunities for firefighters and inspectors while simultaneously being very cost effective. Many fire departments have experienced budget cutback in their training divisions and fire prevention divisions. This curriculum is a couple of notches above “on the job training”. It does not require back fill for people to go away to school nor does it require travel expense. The study materials are on CD’s which means they are reusable. The curriculum is designed so that multiple individuals can use the exercise simulation without interfering with each other’s work.



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Currently Wilson, Ionia, the CFAI and Reality Response are engaged in field-testing of the concept. There are approximately 53 beta sites that are experimenting with the software. Several locations have been used to test some of the session guides. Recently the CFAI posted a notice on their bulletin board advising fire departments that they may pre-register to be the recipient of the project when it is ready to be delivered. The grant requires the distribution of 2,500 sets to fire agencies. The use of the software does have some specific hardware requirements. That is why the pre-registration is being done. Those departments that would be interested in becoming a user can go to the CFAI website and by completing a few simple questions be placed upon the list.

The team that created this curriculum is also working with a wide variety of other partnering agencies such as the IAFC's Fire and Life Safety Section, many state fire chiefs associations, state fire prevention officers groups, and the Fire and Emergency Services Higher Education group, (FESHE), TRADE, and others.

This curriculum also contains another component that is somewhat unique to grant projects. It has an evaluation phase that focuses upon accomplishments of the use of the software. The goal of the project is to achieve approximately 25,000 individuals who will have been exposed to the curriculum over a period of the next 24 months. Each participant in this process will receive a professional recognition certificate. They will be given a sufficient amount of background and information that should prepare them to be able to take and pass a Fire Inspector I examination.

In summary F.I.R.E.S. is a brand new way of learning about fire prevention in the real world through the use of a virtual world. It draws a nexus between real world experiences and hypothetical code language. It also provides the participants with a body of knowledge that they might find very useful on the fireground at some point in the future.

Those fire agencies that are interested in becoming part of the "brave new world" are encouraged to apply. Visit www.cfainet.org and complete the pre-qualification survey or contact Debbie Sobotka with CFAI. Her phone number is 866-866-CFAI ext 202 or e-mail to Debbie@cfainet.org