Presentation Title: Using Tablet Technology to Enhance Fire & Life Safety in the Field.

Presented by: Roger Parker

I. Formative Evaluation – Planning:

In 2008, we noticed that restaurants had a higher rate of fire code violations and fires in their kitchens. We researched our records and determined that one-third of our commercial building fires occurred in restaurants. We identified 136 restaurants that needed an intervention program. Our program objective was to gain fire code compliance through increased inspection frequency and verbal education. We implemented the 4 E process. We tried to educate restaurant personnel by explaining the fire code requirements and how the engineered systems work. We inspected the engineered systems. We took the appropriate enforcement action by writing fire code violations as necessary. We evaluated the impact of the program while conducting follow-up inspections. In most cases, the violations had NOT been corrected. In an effort to understand why we weren't obtaining compliance we asked restaurant owners and managers for feedback on why the violations had not been corrected. Their response was that they didn't understand the systems, didn't know the code requirements, and didn't have the money to maintain them. Our strategy to gain compliance through increased inspection frequency and the 4 E process wasn't working. There had been very few changes in fire safety behavior or decreased hazards. We still had many restaurants with fire code violations and an increased chance of fires. In 2012, we upgraded our fire department database to a cloud based system, Emergency Reporting. We purchased 4G tablets. We set up the new the database to track different types of occupancies (including restaurants) and track fire suppression system maintenance. We developed an inspection checklist for restaurant kitchens to track specific fire code compliance issues. When we started doing inspections with tablets, we immediately noticed that people engaged us in a positive manner. This gave us more opportunities to educate. We quickly realized that the tablets could be used for more than documenting inspections. We started adding digital fire safety content to show visual educational content. The more fire safety content we used, the more questions they asked. We soon realized that the tablets were powerful, "Digital Fire Safety Toolboxes" that could be used to enhance fire and life safety in the field. The business community was engaging with us. Our interaction was more positive. Compliments were up. Complaints were down. Fire Prevention Staff felt more successful and appreciated by the business community, they were excited to come to work. They felt empowered and started using inspections as an opportunity to educate. We then started looking at the potential of adding video content on the tablets. We searched for kitchen fire safety videos and didn't find what we needed. We decided to produce our own video that covered all aspects of kitchen fire safety. We researched adult learning principals to insure that the needs of our target audience were going to be addressed. We realized that the tablets were acting as a "motivational trigger" to encourage people to engage. Pyro-Chem/Ansul provided kitchen fire suppression system training videos that we edited into our video. We pulled some video segments from YouTube. We photographed the most common restaurant kitchen fire code violations. We then produced several versions of a video and settled on a 5 ½ minute video that covered the fire suppression system, general kitchen emergency procedures, fire extinguishers, common fire code violations, and maintenance requirements.

II. Process Evaluation – Implementation:

We then re-implemented our intervention program. Our program objective was to gain fire code compliance through increased inspection frequency and video education in the field. We scheduled restaurant inspections during non-peak times. We performed a quick verbal pre-test by asking some basic questions about their kitchen, emergency procedures, and training to establish a knowledge base (minimal in most cases). We asked for six minutes of their time for staff training on the tablet. After showing the video, we immediately reinforced the learning in their kitchen while offering encouragement and positive reinforcement. We performed a quick verbal post-test by asking some basic questions about their kitchen fire protection and fire safety procedures and determined that in all cases their knowledge base was dramatically increased. The feedback was very positive. Restaurant staff felt they were better prepared and safer.

III. Impact Evaluation – Short Term Results:
The use of tablet technology in restaurants has increased staff knowledge of engineered kitchen fire suppression systems, kitchen fire safety, emergency procedures, fire extinguishers, code requirements, and maintenance requirements. The use of tablet technology in restaurants has improved fire code compliance. In many cases managers take immediate voluntary action to correct fire code violations and reduce any risks. We're now tracking data to confirm the impact. Many managers said they've been in the food service industry for years and had never been trained on kitchen fire safety. Managers have invited us to return and train other staff from different shifts. Several chain restaurants invited regional managers and staff from other stores to attend the training.

IV. Outcome Evaluation – Behavior Change:
The use of tablet technology in restaurants has enhanced positive behavior. The business community is more positive because they now realize that we're there to better educate them and their employees to help them be safe and successful, not drive them out of business. The use of tablet technology in restaurants has improved communications, people engage and communicate. Even when it's necessary to write violations, we use technology to make the experience more positive and easier to understand. The inspection report includes explanations and photos that can be used to educate management that needs to approve expenditures. Before we implemented tablet technology we used the 4 E process. We failed at education because we couldn't get the business community to engage and communicate. We couldn't educate anyone that wasn't engaged. We were forced to move to enforcement. We even had to use enforcement to get the engineered fire protection systems installed and maintained. After implementing tablet technology we now use the 6 E process: Empowerment, Engage, Education, Engineering, Enforcement, and Evaluation. The use of tablet technology has completely changed the Avondale fire prevention culture and how we interact with the business community. Inspectors are EMPOWERED with their "Digital Fire Safety Toolbox" ! They find new uses almost daily. Inspectors ENGAGE with the business community using their tablets to EDUCATE them in a positive manner. Inspectors inspect ENGINEERED systems using their tablets. The engineered plans and photos of many restaurant kitchens are available in the database for reference on the tablets in the field. When ENFORCEMENT is necessary inspectors use their tablets. Specialized restaurant kitchen inspection checklists are built into the inspection reports, including fire code references and educational narratives. Photos of violations are inserted directly into the inspection report for easy reference and educational purposes. Based on our verbal pre-test and post-test, we've observed an immediate and significant increase in kitchen fire safety awareness and knowledge. Many fire code violations are immediately corrected during the inspection.

Outcome Evaluation – Long Term Results:
We are using our database to track the following information to determine the long term impact of this program: educational efforts (when we show videos), fire inspections, fire code violations (type and number), fire suppression system maintenance, fires, and injuries.

Recommendations for others:
1. EMPOWER your staff with tablet technology. Tablets are relatively inexpensive. Tablets can be used effectively using only videos and apps if you don't use a cellular connected database. Tablets can be easily connected to larger screen HDTV's for use with larger audiences.
2. ENGAGE and communicate with your business community using tablet technology.
3. EDUCATE your business community in their place of business using tablet technology.
4. ENHANCE fire and life safety in your community by using tablets as a "Digital Fire Safety Toolbox" in the field.

Conclusions:
This presentation is only one example of the use of tablet technology to enhance fire and life safety in the field. Using tablet technology in the field has significantly enhanced fire and life safety in the City of Avondale. When we implemented the use of tablets our goal was to document inspections in our cloud based database. We quickly learned that tablets can be a "motivational trigger" to engage and educate. I can honestly say that I think the use of tablets in the field is a fire and life safety paradigm shift. The positive results are the most significant I've seen in my 40 years in the fire prevention.