Industrial Exterior and Structural Fire Brigades

By Jeff Fortney

Every day, industrial fire brigades provide fire protection at industrial facilities around the world. Industrial fire brigades protect industrial personnel, processes, materials, and production from fires, hazardous materials incidents, medical emergencies, and other emergency situations. While some industrial fire brigades operate at the incipient level, others operate only at the interior structural or advanced exterior levels. Others operate at levels that include both the interior structural and advanced exterior levels. Many of the tasks industrial fire brigade members perform are similar to those performed by firefighters in municipal fire departments; however, inherently dangerous industrial environments pose significant hazards and challenges unique to industrial facilities and their industrial fire brigades.

Over the years, many incipient level fire brigades have used the IFSTA Industrial Emergency Services Training: Incipient Level manual to train their incipient fire brigade members. While the IFSTA Essentials of Fire Fighting manual addresses the training needs for firefighters, IFSTA has developed the Industrial Exterior and Structural Fire Brigades, first edition, to meet the training needs of industrial fire brigades at the interior structural and advanced exterior levels. This manual is designed to aid industrial managers in establishing industrial interior structural, advanced exterior, and combination fire brigades. Because industrial training agencies generally train personnel for these levels in one course, this manual was written to cover the requisite knowledge and skills requirements for incipient fire brigade members as well as the material for the fire brigade leader position.

Industrial Exterior and Structural Fire Brigades, first edition, consists of sixteen chapters that address the National Fire Protection Association (NFPA) Standard 600, Standard on Industrial Fire Brigades, and NFPA 1081, Standard for Industrial Fire Brigade Member Professional Qualifications, job performance requirements (JPR). (A description of each chapter follows in the next section.) Appendix A identifies the pages where the information relating to each particular JPR is ad-

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Courage

“Often the test of courage is not to die but to live.” - Conte Vittorio Alfieri

Late this past summer I watched with both grim fascination and dismay the live televised reports of rockets falling around Israel and later similar coverage of bomb damage in Lebanon. This macabre “tit-for-tat” seems all too familiar these days, and as with most such cases, innocent civilians suffered the most. Through it all, I watched in astonishment as Israeli and Lebanese firefighters responded while under attack to rescue and attend to victims.

More recently and closer to home, I mourned with many of you the deaths of five forest service firefighters lost in the Esperanza wildfire. These deaths — at the hands of an arsonist — have so moved all of us in the fire service family and indeed all Americans. Over this same time period I read with dismay about gang violence in the UK that targets firefighters. Firefighters are being attacked with rocks, bricks, and bottles as they respond to malicious calls placed specifically to set them up for assault. Unfortunately, such violence against firefighters — while not uncommon in the past in war zones such as Belfast, Sarajevo, and more recently Grozny — is more and more becoming a familiar event in Manchester, London, Los Angeles, and Detroit among unfortunately so many other communities.

Although we have made great strides in health and safety, we don’t have to be reminded that fire fighting continues to be a dangerous profession. In both high-profile and the thousands of day-to-day incidents, I continue to look on in admiration and pride at the courage of those in our profession. Each of you faces the danger of injury and even death every time the alarm sounds. You also come to understand that every run might in reality be your last. As it is noted in St. John, “Greater love hath no man than to lay down his life for his friend.” Yet each day you would gladly do the same for not only your fellow firefighter but also for a stranger. Such courage continues to inspire so many and yet without lessening the ultimate sacrifice paid by so many over the years, I wonder if we’ve really missed something important, perhaps even a greater feat of courage.

Merriam-Webster defines courage as “(the) mental or moral strength to venture, persevere; (to) withstand danger, fear, or difficulty; (and) to resist...
Don Davis Retires

Fire Protection Publications (FPP) Production Manager Don E. Davis retired on January 2, 2007, after serving more than 27 years in this capacity. A fixture within the FPP family over the past three decades, Don played an enormous role in the evolution of IFSTA/FPP’s training materials from fairly simple black and white documents to the award-winning publications produced today. He embraced technology his entire career and led FPP from the days of phototypesetting and Exacto knives to the modern era of computer-generated design. Don’s expertise in graphic design, publication production, and printing has been invaluable to the success of IFSTA and FPP.

In addition to serving FPP, Don has been a volunteer with the city of Stillwater Emergency Coordination and Communications (Emergency Management) Department (Previously the Payne County Civil Defense) for more than 30 years. Over those 30 years he has been a first responder to a wide variety of natural disasters and emergencies that have affected the local community. He will continue his work with that organization in his retirement.

The staff of FPP and the members of IFSTA thank Don for his legacy of dedicated service to the training of firefighters, and we wish Don and his wife Ada all the best as they continue on with this next phase of their lives.

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From the Director

opposition, danger, or hardship..." When I first glanced at this definition, it reminded me of the courage firefighters exhibit daily as they face the possibility of dying in the line of duty.

A few weeks ago I had the honor to share lunch with Ron Siarnicki, Executive Director of the National Fallen Firefighters Foundation, and listened as he noted with obvious pride the effort of his staff and the many volunteers who were in final preparations for this year’s memorial service in Emmitsburg (what an incredibly difficult yet invaluable labor of love they do for each of us, each and every day). Yet sadly, in the middle of the smiles and stories, he literally grimaced as he noted that once again, there would be over 100 names recognized in the service. My heart ached as you could see the pain of some one who feels responsible for each and every line-of-duty death. Ron takes it personally. He is a good man, and there are many others just like him. You see, Ron knows from those who have experienced a line-of-duty death of a family member or close comrade that the wounds never heal for those left behind. So, once again I looked closely at the definition of courage and really thought about us, and I noted that “to die” or “to face death” is not mentioned! Please note that I am careful not to minimize the ultimate sacrifice or the courage of those who would give or have given all that they have on this earth, but with respect and as Alfieri so wisely recognizes, courage is also for the living. We can readily recognize the courage of the firefighter who enters a hostile environment, but what about the courage of the firefighter who retires earlier than he planned because he is no longer physically up to the task and as such may be a danger to both himself and his coworkers? What about the fire chief who stands tall at City Hall demanding resources for a fire department fitness program? What about the Fire Marshal who refuses to compromise code enforcement for political expediency? What about the Local that negotiates a mandatory drug testing and treatment program for all members (and the chief officers who join in the program as well)? What about the department that holds itself accountable to NFPA 1500, 1710, and professional certifications and works at all levels of the political process to make it happen? All of these examples take incredible courage — the courage to live.

We’ve reached a real decision point in the fire service, one that now must be answered at the individual level. We have watched as our leadership through the USFA and NFFF has led the effort to develop programs designed to reduce firefighter deaths by 25 percent over five years and 50 percent over ten years. The end of the first five years is almost upon us. As I noted earlier, the numbers aren’t falling, and by no means is there a reduction anywhere near 25 percent. Thousands of hours of work in the last few years by so many across our service — both as organizations and collectively — including the NFFF, the USFA and NFA, NIST, the IAFF, the University of Maryland, Oklahoma State University, the IAFC, the NVFC, and many others has led to a wealth of knowledge and best practices that have proven impacts on reducing the incidence of firefighter deaths and injuries. But the missing link between those programs and actual reduction in deaths is not our leaders, it is YOU! No longer can you (or I) blame others as “the problem,” each of us is responsible. Are you in shape? Do you train often and effectively? Does your equipment meet all relevant safety standards? Do you keep your equipment clean and working properly? Is your inspection and code enforcement program comprehensive and up-to-date? Do you have a sprinkler ordinance? Do you have a driver safety program and policies (and do you follow them)?? Do you have and follow a NIMS-compliant command structure? Do you have an effective, proven incident rehab program, and do you use it faithfully? Do you lead by example, or do you blame others? These are but a few examples; however, all of them take courage at each level of service. ALL of us are accountable and must remain committed to the end goal — to live.

I hope that you are not offended — this is not my intent. Instead I am tired, as are so many of you, of a broken heart each year as I see 100 plus names go up, one at a time on our memorial. This letter is to YOU individually. At IFSTA/ FPP, one of our stated values is “courage,” and it is defined by our staff as: We embrace change. We will:
• accept calculated risk taking as an integral and challenging part of our daily responsibilities,
• move promptly and decisively by adapting as conditions warrant,
• make straightforward decisions, and
• conscientiously follow through.

I am proud of their wisdom and vision, and may I offer that perhaps we all personally adopt these same principles? It begins with YOU alone, and my hope is that we can actually all come back together next October to remember those in our family who gave the ultimate sacrifice, but also to celebrate the living — those who didn’t die because they didn’t have to and on that day stand because of courage.

To Ron and the NFFF staff, Board, survivors, and volunteers: Thank you for what you do. You make us proud, and you have our utmost respect and admiration!

Be safe!

Chris Neal
• Chapter 1 — Industrial Fire Brigade Organization and Safety. Describes fire brigade organization, the responsibilities of managers, the industrial fire brigade organizational statement, employee action plans, record keeping, environmental awareness, operating procedures, personnel accountability systems, and communications.

• Chapter 2 — Incident Management. Addresses incident management priorities, incident plans, the National Incident Management System—Incident Command System (NIMS-ICS), and interaction with outside agencies.

• Chapter 3 — Fire Behavior. Discusses physical science, combustion, special conditions relating to fire behavior, special industrial considerations, fire extinguishment theory, and the classification of fires.

• Chapter 4 — Industrial Occupancies. Addresses such topics as industrial structures, types of building construction, effects of fire on common building materials, hazards related to building construction, and dangerous building conditions.

• Chapter 5 — Fire Prevention and Pre-Incident Planning. Describes fire prevention to include types of fire hazards and how to conduct fire safety surveys. It also covers preincident planning to include describing the preincident survey and how to conduct one, developing preincident plans, managing preincident data, and terrorism.

• Chapter 6 — Personal Protective Equipment and Respiratory Protection. Discusses the various types, uses, and maintenance of personal protective clothing worn by industrial fire brigade members as types and importance of personal alert safety systems (PASS).

• Chapter 7 — Portable Fire Extinguishers. Covers the methods of expelling extinguishing agents, types of portable fire extinguishers, how extinguishers are rated, extinguisher symbols, how to use portable fire extinguishers, and extinguisher inspection, maintenance, and servicing.

• Chapter 8 — Fire Detection and Suppression Systems. Describes fire detection systems, basic system components, types of fire alarm systems, manual alarm-initiating devices, automatic alarm-initiating devices, inspecting fire detection and alarm systems, fixed fire extinguishing systems, sprinkler systems, carbon dioxide extinguishing systems, dry chemical extinguishing systems, foam extinguishing systems, fixed monitors, wet chemical extinguishing systems, clean agent extinguishing systems, and system inspection records.

• Chapter 9 — Incident Search, Rescue, and Extrication. Covers incident search and rescue, safety during search and rescue operations, rescue procedures to include rescue drags and carries, special rescue situations, and extrication.

• Chapter 10 — Forcible Entry. Addresses the various forcible entry tools, door size-up and construction features, locks and locking devices, nondestructive rapid-entry method, conventional forcible entry through doors, and through-the-lock forcible entry. Also discusses forcible entry involving padlocks, fences, forcing windows, and breaching walls.

• Chapter 11 — Ground Ladders. Describes the basic parts of a ladder, ladder types, ladder maintenance and inspection, procedures for handling ladders, ladder carries, positioning of ground ladders, general procedures for raising and climbing ladders, ladder raises, special procedures for moving ground ladders, securing the ladder, climbing ladders, working on a ladder, and assisting a victim down a ladder.

• Chapter 12 — Water Supply, Hose, and Fire Streams. Covers the basic principles of water supply systems, fire hose, fire hose sizes, causes and prevention of fire hose damage, general care and maintenance of fire hose, fire hose couplings, hose appliances and hose tools, hose rolls, coupling and uncoupling fire hose, basic hose loads, preconnected hose loads for attack lines, handling hoselines, advancing hoselines to final positions, operating hoselines, service testing fire hose, fire streams, etc. It also covers hazards associated with foam.

• Chapter 13 — Fire Control. Includes topics such as fire control operations, deploying master stream devices, suppressing fires involving classes A, B, C, D, and K materials, high temperature duty equipment fires, and fire brigade tactics.

• Chapter 14 — Hazard Control. Describes storage tank fire control operations, bulk-capacity fixed-facility containers, tank fire suppression systems and equipment, portable foam application devices, tank fire suppression methods, developing a fire suppression strategy, water supply and delivery, foam calculations, and control operations for spills, leaks, and releases.

• Chapter 15 — Ventilation. Discusses the advantages of ventilation, considerations affecting the decision to ventilate, vertical ventilation, horizontal ventilation, forced ventilation, and the effect of building ventilation systems in fire situations.

• Chapter 16 — Loss Control. Addresses the philosophy of loss control, salvage operations, overhaul operations, and closing and securing the building.

To purchase Industrial Exterior and Structural Fire Brigades, please call 800-654-4055 or visit www.ifsta.org to order. The manual is available for $58.00 (Item 36955). Clip art is also available for $25.00 (Item 38117).

Jeff Fortney is a senior technical editor at Fire Protection Publications.
Since the terrorist attacks on 9-11-01, the Oklahoma City Bombing, and several huge natural disasters, much attention has been paid to public and firefighter safety. Millions of federal dollars have been spent on equipment and training related to Homeland Security and ALL-Hazard responses, and with good reason. So many technological advances have been made in the past decade that can save lives of the citizens we serve and keep the emergency responders out of harm’s way. Beginning with the emergency responders themselves, there are many types of personal protective equipment (PPE) which have improved immensely. For example, there are many new advanced types of hazardous material/WMD monitors and sensors. Thanks to grants and other programs, many departments have been able to purchase technologically advanced PPE for their firefighters. As you know, keeping them safe allows them to rescue more people. There are also many other technological aids which assist responders in getting to the scene. Advancements using GIS/GPS technology in the 9-1-1 systems provide dispatchers with more accurate information. Now they can know more about who is calling and where they are located. This is vital since there are many occasions when they cannot convey these important details themselves. On the other side of the equation, Automatic Vehicle Locator (AVL) devices allow dispatchers to tell which is the nearest available unit to dispatch. This shaves off time when every second counts. Now that they have arrived at the scene in the quickest possible time, other technology can assist them. Terrorists or criminals may still be in control of the site. Responders may use sophisticated software that can display safe access routes to keep them out of the path of sniper fire. Accidental leakage of toxic fumes may restrict access from certain directions — computers can produce plume drawings to indicate the safest way to enter or what zones should be avoided. Now, there are smarter ways to handle the approach to the structure. Another particularly challenging category involves a collapse. It might be a man-made collapse such as with the Oklahoma City Bombing or the World Trade Center. Or, the same scenario can occur after an earthquake, landslide, tornado, or other natural disaster or accidental event such as a plane/train crash or mining collapse. Regardless, the result is that there are so many places to look and not enough time. Again, technology can assist us in knowing where to look first. By way of an historical example, let’s find out more about what actually happened in Oklahoma City. The Unified Command team poured over piles of paper architectural drawings cluttered with details that distracted us… to try to guess where to find victims. With precious moments ticking by, we hastily laid clear Mylar over the drawings and traced the building’s outlines with grease pencils to give us some of the critical information we needed as to the building’s structure, without the other items we didn’t need. Staff engineers from Southwestern Bell Telephone were setting up phones and faxes at our operations center. They saw our dilemma and stepped in with technical advice. They knew about computer-aided design (CAD) files and tracked down the actual computer files of the Murrah Building. They contacted the software manufacturer, and Autodesk, Inc. immediately sent software and support. The next day, we had the detailed information we wanted. At the same time, details about the last known location of individuals were secured from the FBI exit interviews. Putting everything together with knowledge about collapse phenomenon, the software specialists were able to simulate the collapse of the Murrah Building. Our accuracy in knowing where to look for victims was vastly improved. We were generally able to estimate the location of the victims within 5-10 feet. When there are mountains of rubble — this is significant! All of this happened again… on an even larger scale at the World Trade Center. I arrived in the second week to assist in the incredibly arduous and heart-breaking task of finding survivors and victims. The Oklahoma City Bombing was a wake-up call; New York was a stark confrontation with reality.

Following the Research Symposium, all papers will be posted on the IFSJLM website. In addition, all papers will be submitted for peer review and a Symposium issue of the International Fire Service Journal of Leadership and Management will be devoted to the topic. See below for ideas about possible paper topics.

No registration fee is required to attend the research event, but all costs associated with attending RS07 are the responsibility of the attendee. A continental breakfast and lunch will be provided for panel participants.

For further information visit us on the web at www.ifsjlm.org or call Bob England at 405-744-9665.

Statement of Purpose and Potential Paper Topics

All fire and rescue services departments operate in a political environment. Politics has been defined by political scientist David Easton as “the authoritative allocation of values.” Through politics public policies are made and these policies have impacts; they represent the wants, demands, and preferences of various groups as they interact with government officials (elected and appointed). A number of constituencies are present in a local environment that government officials must manage, including, for example, citizens and citizen groups, the media, special interest groups, and neighborhoods. Within an organization, fire chiefs as part of the larger managerial network in the city must work with unions and/or employee associations. Socioeconomic factors such as wealth (per capita income) and demographic makeup of the city (e.g., racial composition, average age) as well as major business activities help define the demand for services and the ability to pay for such services. The political culture, the collective orientation...
However, there were certain fundamental similarities there with the earlier crisis conditions in Oklahoma City. Most regrettably, it seems that we in the emergency response community seem to be slow learners. We had not taken to heart the Lessons Learned at prior incidents, as deeply . . . and as quickly as we should have done. (Never miss an opportunity to study Lessons Learned at other disasters, so that you can add them to your own toolbox!)

There are so many similar scenarios. The building need not actually collapse for there to be a problem. Maybe it is a public school where innocent children are being held hostage. Firefighters as well as law enforcement officers and emergency medical services need to know many details about the building. As we have learned from past experience, interoperability is of paramount importance. If all of emergency responders can know more about the building, then the entire outcome of the incident may change for many victims!

So, the bottom line is that we need to stop trading blood for bricks. We need to think smart and work smart . . . using technology, instead of brute force. We have seen that again and again, firefighters face the same situation in numerous scenarios. We need to know all kinds of infrastructure information about the buildings themselves and how they acted under the specific conditions of that incident. Can the perpetrators gain access to this building from the storm sewers or other underground tunnels? Where are the HVAC systems? What is their capacity in case we need to shelter in-place? We need to know what is inside and outside of the building. In addition, we need to know what is going on underneath the building and above it, too.

And, often it is not just one building! It seems national and local incidents are becoming more complicated than in the past. Many, many structures were involved in both Oklahoma City and New York City. Heaven forbid that we would have a major earthquake or other regional incident that would create an extended area of collapses or other problems. Luckily, after much refinement from the early work, complex software simulations can now be done with the aid of technology.

Once inside the structure, a whole other world of technology opens up. There are many different types of technology which can be used to find the victims when we pull up to the building in question. Sensory technology is critical. When every minute counts, getting to victims as quickly as possible is crucial. For example, we have thermal imaging cameras which help us see through the smoke to find people if the structure is on fire or people are trapped in debris. In addition, there is fiber optics to put in places where a person might be trapped.

There is still plenty of opportunity to make better use of technology. Responders need to take full advantage of what technology has to offer and become well-trained on the operations of that technology. We all need to work at staying aware of technological advances, studying them, and training our firefighters about technology.

Making good use of technology can often take victims or firefighters out of harm’s way and save their lives. Today, we emergency responders need to plan for, respond to, and recover from all types and scales of emergency incidents. The old one-page paper pre-plan just doesn’t cut it any more. We need more. Technology is able to provide us with accurate to-scale data on floor plans and structure loads. With pre-planning, technology can quickly supply us with digital pictures as well as spherical 360-degree video for use en route or on the scene. Technology can be programmed with detailed occupancy information for each and every room onsite. We have the ability to be much more effective, whether it is in an exercise or during an actual response, as well as critiquing the response afterwards. Opening our minds to technology is the key!

Jon Hansen, who was the face many of us remember from the Oklahoma City Bombing, relates first-hand experiences from the rescue and recovery work there. In addition, he has been onsite at other mega-disasters, such as the World Trade Center and hurricanes in the Gulf Coast.

Since retiring as Assistant Fire Chief of the Oklahoma City Fire Department, Hansen has been working as a disaster specialist. He assists emergency responders across the country in preparing for and responding to ALL-Hazard incidents. Hansen reviews 10 years of blows and breakthroughs in crisis management and the impact which technology can have on saving lives.

References

Angst, Anguish, and Sexual Harassment Prevention
By Riley Harvill, Ph.D.

Go ahead and add one more thing to the old adage that the two certainties in life are death and taxes: change. And, like going back to your childhood neighborhood after a long absence, sexual harassment prevention looks only vaguely familiar as it did just a few years ago.

Recall for a moment that in the somewhat recent past, sexual harassment could be summed up rather simpistically as offering a subordinate a raise or promotion in return for sex? In these times, sexual harassment could be neatly packaged and remembered.

Then things started getting more complex. Courts started holding supervisors and their respective workplaces responsible for their knowledge and failure to halt the inappropriate behavior. Then, in the famous Burlington v. Ellerth ruling, the Supreme Court ruled that organizations can be held responsible for the acts of its supervisors even if it had no knowledge that the supervisors were doing anything wrong. Essentially the Court indicated that organizations are strictly liable for acts of supervisors when the result is tangible job loss or loss of position or income on the part of a subordinate employee.

In a ruling, entitled Christopher v. National Education Association, the Court of Appeals ruled that behavior that is nonsexual can now be considered sexual harassment. Let me repeat: Sexual harassment no longer must stem from inappropriate sexual behavior. This case dramatically expands the definition of sex-based harassment to include not only behaviors that are facially gender-based or motivated by gender bias, but also facially gender-neutral behaviors with no discriminatory intent that are subjectively experienced differently by members of the opposite sex.

Specifically, the Christopher court concluded that a qualitative and quantitative difference between the treatment of men and women in the workplace is enough to support a claim of sexual harassment or discrimination in violation of Title VII, even if there is no direct evidence that the alleged conduct or the motivating intent behind that conduct is sex-specific. In this case, a male supervisor behaved in an aggressive manner toward women and well as men. He frequently shouted at female employees in a loud, profane, and hostile manner for little or no reason at all. He also repeatedly exhibited physical aggression toward female employees such as lunging across tables, shaking his fists at them, and grabbing their shoulders from behind while yelling at them.

The court held that the fact that a purported harasser was equally degrading to both men and women does not defeat a claim that the genders were treated differently because there may be a subjective difference between the way the degradation was perceived and experienced by the different genders. In other words, while most men may not perceive the above described behavior as harassment, women may because they are different.

Yes, you read that correctly. The court is saying that women are different, perhaps more sensitive.

Allow that to soak in for just a bit while your head fills with questions. What does this ruling do to the equality that women have been seeking for the past one hundred years? Will this level the playing field so that women can achieve equal status? Do women want to be viewed as more sensitive and will this ruling actually set back women in their quest for respect?

And before you’ve had a chance to digest that ruling, let me give you another one: Consensual sexual relationships between supervisors and subordinates may constitute hostile work environment sexual harassment. In a case known as Miller v. Department of Corrections, consensual sexual relationships between supervisors and subordinates create a hostile environment when women are perceived as sexual playthings or are made to believe that their ability to advance professionally depends upon their willingness to engage in sexual relations with their supervisors or management. What this means is that even if the subordinate employee consents to a supervisor’s sexual advances, she/he can still maintain an actionable cause for sexual harassment. In other words, consent, on the part of an employee, does not protect a supervisor from sexual harassment charges. The indirect consequence of this decision is a heightened burden upon employers to monitor and in some cases possibly to eliminate fraternization between supervisory employees and their subordinates.

What Can We Do?
There is no doubt that the courts are taking a hands-on approach and sending several clear messages:

1. Organizations are responsible for the acts of supervisors.
2. Even nonsexual behavior can be deemed discriminatory because although women and men may experience the same behavior, the subjective experience is different between the different genders.
3. Even consensual relationships may constitute sexual harassment.

The first order of business is to protect the organization through training. The U.S. Sentencing Commission, the agency that establishes sentencing practices and policies for the Federal courts, ruled that organizations should conduct regular and periodic training in order to inoculate themselves against liability.

The self-paced workbook and corresponding trainer’s manual entitled Sexual Harassment: Trend or Turning Point does this very thing. Departments can pick up a trainer’s manual, complete with overheads, and the corresponding number of participant workbooks and conduct a top-notch sexual harassment prevention course. This is a true workbook, not a boring textbook. There are 25 real workplace scenarios from departments around the country. These scenarios concretize the subject and go beyond mere esoteric discussion. Using this workbook and corresponding trainer’s manual protects your department from all types of sexual harassment.

Dr. Riley Harvill is a long time consultant to fire departments around the U.S. He welcomes your questions and thoughts about sexual harassment prevention and other organization development issues at 214-363-6780.

To purchase Sexual Harassment: Trend or Turning Point trainer’s manual or participant workbook, please call 800-654-4055.
CSB-Produced Videos Highlight Chemical Process Safety

U.S. Chemical Safety and Hazard Investigation Board

The U.S. Chemical Safety and Hazard Investigation Board (CSB) is an independent federal agency charged with investigating industrial chemical accidents. The agency's board members are appointed by the president and confirmed by the Senate. CSB investigations look into all aspects of chemical accidents, including physical causes such as equipment failure as well as inadequacies in safety management systems, regulations, and industry standards. The Board does not issue citations or fines but does make safety recommendations to plants, industry organizations, labor groups, and regulatory agencies such as OSHA and EPA.

The (CSB) has posted on its website eight CSB-produced safety videos depicting events, findings, and recommendations from accident investigations by the agency. Several contain sophisticated computer animations of events that led to explosions and fires. The videos are also offered on a single DVD which can be mailed to interested persons and organizations at no cost to them.

CSB Chairman Carolyn W. Merritt said, “We are embarking on something new, the use of brief videos to communicate our findings about many aspects of chemical process safety. We hope these videos provide a compelling way for people in industry, emergency responders, and the public to learn more about specific hazards and how to prevent chemical accidents in the future. All are welcome to use them any way they see fit to further the goal of chemical process safety.”

There has been a high demand for the videos since the first was posted on www.CSB.gov last December. Health, safety and environment managers, operators, labor groups, consultants, and academics have indicated to the CSB they are making wide use of the videos in training and safety education programs.

The following safety videos may be viewed online in the Video Room of the Board’s website www.CSB.gov. DVD copies may also be obtained at no cost to the recipient by filling out a request form on the website. The CSB welcomes comments on the videos and ways in which they are used in enhancing safety.

• Fire and Explosions at Formosa Plastics, Point Comfort, Texas (8:34) depicts cause of massive propylene release; dramatic footage shows subsequent explosions; photos of destruction, animation of accident scenario, investigation findings and recommendations; notes the need to fireproof structures, protect piping, and install automated valves.

• Dangers of Propylene Cylinders in High Temperatures: Fire at Praxair, St. Louis, Missouri (8:20) includes dramatic footage, photos of destruction, computer animation of accidental release of gas from cylinder, investigation findings and discussion of pressure-relief valve standards and good safety practices in handling such cylinder products.

• Ethylene Oxide Explosion at Sterigenics, Ontario, California (9:25) depicts through computer animation the sequence of events leading to a large explosion, investigation findings, and safety recommendations; highlights the lack of engineering controls, and stresses the importance of understanding process hazards.

• Dangers of Flammable Gas Accumulation: Acetylene Explosion at ASCO, Perth Amboy, New Jersey (6:49) depicts through computer animation the sequence of events leading to an explosion that took three workers’ lives; shows investigation findings, covers importance of maintaining up-to-date operating procedures for operating processes, relocating drains and vents connected to flammable gas-containing equipment, and ensuring that buildings and enclosures meet National Fire Protection Association (NFPA) Standards.

• Explosion at BP Refinery, Texas City, Texas (6:14) depicts through a sophisticated narrated animation the sequence of events that led to the explosions and fire on March 23, 2005, where 15 contractors died. The video graphically illustrates how this tragic incident occurred and how instruments and alarms failed to indicate the dangerous condition. Narrated by CSB BP investigation lead investigator Don Holmstrom. (Also available in Spanish, German, and French).

• Preventing Harm from Sodium Hydrosulfide (6:41) summarizes the health hazards associated with hydrogen sulfide gas (NaHS) and recommends safe management and emergency response practices. NaHS accidents have caused at least 32 deaths, 176 injuries, 351 medical evaluations, and 10 evacuations of plants and communities since 1971. Narrated by investigator Randy McClure.

• Excerpts from CSB Public Hearing on Hazards of Combustible Dust (18:08) summarizes a CSB hearing into the hazards of combustible dust, which caused tragic explosions in North Carolina, Kentucky, and Indiana that were investigated by the agency. The CSB combustible dust study has identified 197 dust explosions in the U.S. since 1980 causing 109 fatalities and 592 injuries.

• Excerpts from CSB Public Hearing on New York City (2002) Building Explosion Need for Fire Code Reform (25:06) features FDNY officials and fire code experts reviewing the CSB’s recommendation that the city revise its fire codes to better control the storage and use of hazardous materials (which New York has done).

• “About the CSB” (10:48) video describes how the CSB functions and features Board members and investigators discussion regarding their strong commitment to chemical process safety and the agency of the mission.

For more information, contact Sandy Gilmour, 202-261-7614, cell 202-251-5496; Lindsey Smith, 202-261-3614, cell 202-725-2204; or Dr. Daniel Horowitz, Director of Public Affairs, 202-261-7613, cell 202-441-6074.
Courage to Be Safe?

By Bill Manning

No firefighter will admit that he or she harbors such a thought as an “acceptable” loss—it’s grotesque. No fire department leader would ever say that he or she was willing to accept one of their own dying that day trying to save Mrs. Smith or Mrs. Smith’s house because it’s a dangerous business and bad things sometimes happen. But after the smoke clears and the last note of taps rings, we are left with a stark reality: We say line-of-duty deaths and injuries are unacceptable, but we don’t always think and act like they are.

• We say they are unacceptable, but we still tolerate, encourage, and even emulate the “adrenaline junkies” in our fire departments who cross over the line between aggressiveness and stupidity.
• We say they are unacceptable but then respond in our vehicles to calls, true emergencies or not, as though it’s the last call we’ll ever make—and sometimes it turns out to be.
• We say they are unacceptable but then won’t do something as simple as buckle a seat belt, following a habit of personal/officer/departmental negligence that has resulted in many of our own becoming “heroic” human projectiles.
• We say they are unacceptable but won’t admit or demand that to be a part of this physically challenging service, you must be fit enough to be able to do it without becoming another “heroic” heart attack statistic.
• We say they are unacceptable but we assume extraordinary life-and-limb risks trying to save tomorrow’s parking lots.
• We say they are unacceptable but too often lack the preparation, training, or resources to engage in the kinds of aggressive strategies and tactics we’re performing—too often there aren’t enough bullets in the gun. RTIs become the ‘solution’ for the inability to read and anticipate fire conditions, lack of training, lack of tactical manpower, lack of communications, and lack of fireground leadership.
• We say they are unacceptable but few of us really believe the best fire is one that didn’t happen or was contained by automatic suppression. For most, the definition of “a really good job” is a multiple-alarm fire.
• We say they are unacceptable, but too often the practice isn’t “Train as if your life depends on it” so much as it is “Train in a way your life is in danger from it.”
• We say they are unacceptable, but we don’t do enough to prevent the thinking and behaviors that lead inevitably to preventable tragic outcomes.

On average, a firefighter dies in the line of duty about every three days. Nearly 10,000 firefighters each year are severely injured, and the vast number of so-called “near misses” can’t be counted. Such heavy losses are unthinkable for the fire services in all of the world’s industrialized countries except the United States, where they are business as usual.

We’re preconditioned to it by our building practices, approaches to fire prevention, personnel development, readiness levels, and response priorities; preconditioned by organizational cultures engrained with, and tolerant of, unsafe behaviors; and preconditioned by a cultural identity vested in the symbolism of ultimate sacrifice.

This is why the “Everyone Goes Home” program was created and the 16 Firefighter Life Safety Initiatives were developed by the fire service. All of the Initiatives are important, but none as important as the first, for it recognizes that changing individual and organizational behaviors, attitudes, and beliefs are fundamental to achieving improved and long-lasting safety.