

International Fire Instructors Workshop @ FDIC

FDIC 2011 Workshop Description
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The 4th Annual International Fire Instructors Workshop (IFIW).

This annual lecture series hosted this year by FDIC is directed at developing a broader understanding of fire dynamics, fire suppression techniques, tactics, command decision-making and realistic training methods for the fire service. The IFIW features an international group of 12 instructors presenting 45 minute mini lectures over two days on best practices in firefighting instructional design and highlight leading edge research and engineering directed at fire prevention, suppression, tactical safety, decision making, education and developing ideas for future shared research themes directed at advancing the fire services.

Co-Moderators: Capt. Peter McBride – Ottawa Fire Services and Dr. Stefan Svensson – Swedish Civil Contingencies Agency

Abstracts of the presentations

Catching Fire: Why Emotional Intelligence is Important in the Fire Service

Responding under the extreme conditions faced by firefighters takes more than tactical preparation. Successful management of emergencies requires the management of those internal alarm responses that are aroused by such emergencies; namely, our emotions. Our skill and aptitude in managing our emotions, as well as those of others are understood as emotional intelligence. This presentation will discuss the role of emotional competencies in developing superior performance and decision-making amongst firefighters.

Dr. Arthur H. Perlini

Hitting the Right Flow

There have never been more heated or controversial debates than those associated with the application of water to room and structural fires! Fog

pattern or smooth-bore! This class will explore the various methods of applying water into the fuel-phase and the gaseous-phase, including 3D Firefighting Swedish fog attack, traditional hard hitting solid stream attack and indirect fog applications.

It will also deal with the various ways of calculating fire-ground water requirements in order to demonstrate how much water is actually needed to control and suppress a compartment, room or structural fire.

Paul Grimwood

Live Fire Training LODD Incidents

As a result of the deaths of two fire fighters in a “live-fire” training incident in 1982, The National Fire Protection Association’s Committee on Fire Service Training developed NFPA 1403, *Standard on Live Fire Training Evolutions*. The purpose of NFPA 1403 is “to provide a process for conducting live fire training evolutions to ensure that they are conducted in safe facilities and that the exposure to health and safety hazards for the fire fighters receiving training is minimized.” NFPA 1403 requires that instructors and safety officers have knowledge of fire behavior. This is important because the standard has limitations on fuels that can be used for training. The directives given are qualitative and without further guidance. For example, “Fuel materials shall only be used in the amounts necessary to create the desired fire size” or “The fuel load shall be limited to avoid conditions that could cause an uncontrolled flashover or backdraft”.

Currently there is no specific guidance in NFPA 1403 on how to make these assessments. Since 2000, NIOSH has investigated the deaths of seven firefighters in the United States which occurred during “live-fire training evolutions”. In each case, unforeseen rapid fire development or inappropriate fuels were used which led to untenable conditions for the firefighters. In three of the six incidents, instructors died. In two of the six incidents, the instructors that died were adding fuel to the training fire when they were overcome.

This presentation will examine two different fire training incidents which resulted in the loss of three firefighters. One incident occurred in an acquired structure and the other occurred in a training tower. In both cases, NIST conducted real scale fire experiments to gain insight into the thermal conditions that may have existed during the incidents. The results of the experiments will be presented and discussed. Methods of assessing the potential thermal hazard of training fuel packages will be discussed, as well

as the limitations of fire fighter PPE, so that future incidents of this type can be avoided.

Daniel Madrzykowski

UL Fire Research With the Fire Service

I will give an overview of the research UL has done for the fire service over the past 5 years. UL has partnered with the fire service and in particular the Chicago Fire Department to conduct several studies that addressed concerns of the fire service. Topics discussed will include: lightweight construction, smoke particulate hazards during overhaul, horizontal ventilation and firefighter safety around photovoltaic systems. Research results will be examined as they pertain to firefighter tactics.

Steve Kerber

Fire Behaviour Training (FBT) for Recruits

The presentation looks New South Wales Fire Brigade's 'two steps forward, one step back' journey as the FBT program was rolled out simultaneously across three very different demographics – the raw recruit, the seasoned veteran, and part-timer. In particular it looks at the special needs of the recruit firefighter and challenges in maintaining the fidelity of live fire props, as we strive to 'describe' a realistic fire environment to those that have yet to experience it.

John McDonough

Learning From Experience

There are many methods available for post fire investigation and analysis of fire operations. The most common are probably reconstruction or (computer) simulation. However, there are many more alternatives, depending on the scope of the investigation. In this presentation, some models are described. These can be used to gain knowledge from fire scenes, to increase the learning and thereby to improve the performance of the next operations. This is a key to a learning organization.

The question is how you view the fire as a phenomenon. In simulation, the phenomenon is looked upon as a release of heat, within the frames of conservation of energy, mass, species and momentum.

Another approach is to regard a fire as a number of events that can be analyzed. First you ask: "what happened?" and for each identified event, you ask "why?" until you have reached the root of the problem.

In many cases the problems with fire arise when it interacts with people, with property and with organizations, e.g. the Fire Service. One approach to study this interaction is by using a Sequential Timed Events Plotting with the focus on actions performed on scene. The interaction of different actors can be analyzed giving in new knowledge.

A fourth approach is to study deviations. It is well known from several disasters that they are built up from a number of deviations. Some of these are major but most are of minor individual importance, but together they lead to the disaster. A deviation analysis focuses on these minor deviations from the expected or normal and is therefore a tool to identify matters to improve.

Stefan Sardqvist

Command and Control – The Scientific Approach

In order to execute fire ground operations effectively, it is necessary to use the available resources in the best possible way. To enable this, fire officers must be fully aware of the capacity of the available resources, the measures that are therefore possible and appropriate to execute and what happens when various measures are applied at different places in time and space. This is really what tactics is about – being able to use the available resources in the best possible way.

However, it is well known within the fire fighting community that experience is the foundation for activities in the fire and rescue service. But experience doesn't help us when we end up in situations we have never met before or when we face fires in new type of constructions. Experience soon becomes a burden to us.

As society changes the need for changes within the fire and rescue service becomes imminent. Today's society is characterized by the rapid increase in the use of advanced technology, as well as increasing complexity and vulnerability. In addition, there are increasing demands on evaluation and investigations of operations.

The solution is of course to have a more scientific approach to fire ground operations. The development in fire science has been tremendous in recent decades, both in volume and with regard to the scientific level, but we have barely started to use this knowledge in the fire fighting community. This has to change.

The presentation will explain and elaborate on the scientific approach to command and control.

Dr. Stefan Svensson

“Getting the Message Across”

Compartment Fire Dynamics - Fuel and Ventilation Controlled Fires

This presentation will outline the approach taken by Dublin Fire Brigade in the development of Fire Behaviour Training. Dublin Fire Brigades current model of training has been influenced by approaches taken in the USA, France, Sweden and the United Kingdom.

John will illustrate the various training methodologies utilised including:

Live Fire Evolutions, Multimedia Presentations, E- Learning Platforms.

John will also explain how developments in training have influenced the development of operational tactics

John Chubb

Analysis of a Double LODD

August 30th, 2008 the Brussels Fire Department suffered a double LODD at a commercial structure set alight by playing children. First due units arrived to find one of two buildings was fully involved and undertook efforts to save the second building. The circumstances of the fire were such that was lack of water – a problem rarely encountered in Brussels. During initial firefighting operations several second due units were engaged in establishing a water supply. During this period the fire evolved and spread to the second building and firefighters that were protecting it were caught by a fire gas ignition. One of them was able to make it out with severe burns while two others died in the line of duty.

This lecture gives an analysis of the fire and the events that lead to such a devastating outcome.

Karel Lambert

Fighting Fires Underground in Frankfurt's Metro

Based on the incident conditions, an operational approach to a Metro subway fire has to be highly flexible. To achieve flexibility in response the Frankfurt Fire Department decided to develop a concept of modular operational tasks.

The presentation will review the concept and how it works, what testing, development and training in underground fire operations. Every fire department member has been trained in their unique training facility on how the task of fire suppression in combination with rescue of victims will be achieved using the modular system.

Jens Stiegel

Fire Control and Ventilation Doctrine

Fire services philosophy of operation varies considerably across the world. While all engage in fire control, ventilation, and rescue operations, the approach and sequence of these tactics varies considerably. This workshop will engage the IFIW participants in an examination of the practical applications of current research in development of an integrated fire control and ventilation doctrine.

Ed Hartin

Tunnel and Underground Infrastructure Firefighting

Churchill Fellowship Research Grant - Planning, Preparation and Response to Emergencies in Large Tunnels

Tunnels present unique and challenging problems for emergency service responders. Brisbane has gone from having no tunnels of significance to having the largest road tunnel in Australia with the opening of the 4.8 km Clem 7 Tunnel. Additionally, a 5 km Airport Link project is under construction, and a third 5 km tunnel will start construction in early 2011. Add to this, the planned 13 km underground rail link and you have a picture of a city undergoing significant increase in underground infrastructure.

So how does a Fire Service with limited experience in dealing with incidents in tunnels prepare for such as risk? Simple, you seek out the best in the world and learn from them!

In 2010, with the support of the QFRS, Acting Inspector Shan Raffel undertook a 10 week Churchill Fellowship to study all aspects of planning, preparation and response. His fellowship included visits to various authorities in USA, Canada, Germany, Austria, Denmark, Sweden, Norway and Switzerland. This presentation will present key findings in relation to lessons learnt, procedures, training, and equipment in use by fire services that have experience in dealing with tunnel emergencies.

Shan Raffel

Working in Another Time

Our work and workplace is highly specialized and filled with many physical and emotional hazards. How far have we come in managing that work and those hazards? This presentation will examine the work, how we have managed it and where we need to go if we want to move away from the sorrow of presumptive illness and death to the benefits of disease and injury prevention. This lecture advocates for radical change!

Peter McBride