



The International Fire Instructor Workshop (IFIW) is an event that gathers firefighters and fire scientists worldwide. Every year, the workshop takes place in another country. In the past years the following countries hosted IFIW: Sweden 2008, Australia 2009, Canada 2010, US 2011, Germany 2012, Croatia 2013 and Poland 2014.

In 2015 Belgium is hosting IFIW. IFIW is the meeting of a limited group of people. In order to have good discussions and exchange of new ideas and experiences, the group needs to be small. However, IFIW wants to share and exchange knowledge worldwide as well. As every year there is a conference that is open to the public.

This year the conference will be held on Friday and Saturday September 18<sup>th</sup> and 19<sup>th</sup>. Several speakers that take part in the IFIW meeting will present a lecture. The program of the conference is as follows:

### **Friday September 18<sup>th</sup>**

- |       |                                                                                                                                                            |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09h00 | Opening of the conference by the conference chair, Karel Lambert (Belgium)                                                                                 |
| 09h10 | John McDonough (Australia)<br><i>Skills maintenance in the fire service</i>                                                                                |
| 10h00 | Juan Carlos Campaña (Spain)                                                                                                                                |
| 11h00 | Stefan Svensson (Sweden)<br><i>Fight fires, not progress</i>                                                                                               |
| 12h00 | Lunch break                                                                                                                                                |
| 13h00 | Steve Kerber (US)                                                                                                                                          |
| 14h00 | Stéphane Morizot (France)                                                                                                                                  |
| 15h00 | Paul Grimwood (UK)<br><i>Need for water in complex structures</i>                                                                                          |
| 16h00 | Closing remarks                                                                                                                                            |
| 16h15 | Break                                                                                                                                                      |
| 17h00 | Round table discussion with the authors of the book "3D firefighting" (Paul Grimwood, Ed Hartin, John McDonough & Shan Raffel), moderated by Karel Lambert |



### Saturday September 19<sup>th</sup>

- 09h00 Opening of the conference by the conference chair, Karel Lambert (Belgium)
- 09h10 Ed Hartin (US)  
*Fireground expectations*
- 10h00 Arthur Perlini (Canada)  
*Decision-Making: Burning Issues in the Fire Service*
- 11h00 Arturo Arnalich (Switzerland)  
*3T firefighting*
- 12h00 Lunch break
- 13h00 Dogan Gurer (Turkey)  
*Fireground Tactics: Istanbul Experience*
- 14h00 Christian Gryspeert (Belgium)
- 15h00 Shan Raffel (Australia)  
*Emergency Planning for Tunnels under Construction and Operation*
- 16h00 Closing remarks

An abstract of the lectures and a bio of the presenters can be found below.





### **The venue**

The conference takes place at the fire academy of Vlaams-Brabant, PIVO. The address of the venue is Poverstraat 75, 1731 Asse, Belgium

### **Registration fee**

The registration fee for this conference is 250 euros. The number of places is limited. Your place is reserved when the registration fee has been paid. Lunch and drinks are included.

### **Registration process**

In order to register for the conference, one needs to send an email to German Berckmans ([germanberckmans@hotmail.com](mailto:germanberckmans@hotmail.com)). He will send the details for the payment.

### **Main sponsor**

IFIW 2015 is supported by the UL Firefighter Safety Research Institute (FSRI). More information about UL FSRI can be found at [www.ulfirefightersafety.com](http://www.ulfirefightersafety.com).

UL FSRI is a strategic partner of IFIW since the meeting in Poland in 2014.

Thanks to the support of UL it is possible to gather firefighting specialist from all over the world to spend some time discussing new practices and exchanging best-practices.

The organization of IFIW 2015 in Belgium would like to thank UL FSRI for its support.





## Abstracts and bio of the presenters at the conference

**John McDonough**

**Australia**

### **"Skills for Life"**

#### *Abstract*

How do we acquire and maintain fire fighting skills in a world where fires are increasing in intensity but decreasing in quantity? More and more it seems organisations are choosing to replace practical, hands-on training with eLearning widgets, YouTube videos and other multi-media. How necessary is ongoing practical fire training in an 'iPhone' world of high-tech computer based simulations designed to save money and time?



What level of expertise do we expect on the fireground with regards to both theoretical knowledge and practical physical skills? How do we assess firefighters as being safe and effective? Can critical fire fighting skills be preserved or even improved with minimum attention or at what time will skills 'maintenance' become skills 'acquisition'?

We must commit to a training regime that hones and improves a firefighters skills through regular realistic and contextualized fire training. Organisations must recognise that without constant maintenance, fire fighting skills will soon deteriorate leading to a loss of capability and an unsafe workplace. There is little chance, nor is it appropriate to expect, that just by attending fires those skills will remain.

#### *Bio John McDonough*

John McDonough has been a professional firefighter for 28 years and is an Inspector with Fire & Rescue NSW, Australia. Since 2003 he has been the Team Leader of Fire Training and in charge of a team of structural fire instructors delivering live fire training both in NSW and other states across Australia. He has travelled extensively in order to study modern firefighting trends in a search for world's best practice in developing and delivering fire training programs. He has delivered fire training courses in Germany, Croatia, Belgium, Poland and France and lectured in Sweden, Hong Kong, Canada and the US. He is a co-author of 3D Firefighting – Training, Tactics and Techniques, which is published in the USA by FPP/IFSTA and in 2009 he was awarded Australia's highest honour for Fire Officers, the Australian Fire Service Medal for his work in structural firefighting training.



**Juan Carlos Campaña López Spain**

**“Survival of the victims in structural fires: the firefighter misconception”**

*Abstract*

Fire has changed, buildings have changed, contents has changed, and so the survival possibilities of any victims inside of any burning building has also changed ... Nowadays we, as Firefighters, need to change our mentality when we confront a rescue situation. We have to have the right knowledge about fire behavior and the corresponding human being survival threshold, in order to know if we can risk ourselves for rescuing a life or only a dead body.



Unfortunately we, as human being, are very sensible, very vulnerable to any change in temperature conditions or respiratory conditions and ... it's not our fault as firefighters, it's not our fault that we can't rescue all the people. It's not our fault that many people can't survive ... We have to assume certain facts when we assess a rescue situation ...

*Bio Juan Carlos Campaña López*

Juan Carlos Campaña López is a Sergeant in Madrid Fire Service, where he has served during about 25 years. He is in charge of one of six shifts in Fire Station 1, in the center of Madrid.

He is CFBT Instructor since 2005 when he ran the Instructor course in Sweden. Since then, he has run many courses in all over Spain, has written several articles and papers in several national magazines and had traveled around the world in order to achieve the right knowledge and training about fire and the best techniques to safely train firefighters in Spain. He also is in charge of the fire branch in the National Association of Firefighting - ASELF. Since 2008 he belongs to the group of professionals of the IFIW.

**Stefan Svensson, PhD Sweden**

**“Fight fires, not progress”**

*Abstract*

Hundreds of years of experience unimpeded by progress is coming to an end and knowledge based on science is making its way into the fire service. However, this is not all that true: the fire service is a far more progressive organization than one might think. Unfortunately, some seem to see it as a battle between experience and research. This is not true either: experience and science has always worked together in sweet harmony. But science is a slow process, and it should be a slow process. Resistance to change can be explained, but not excused, by safety reasons: the foundation of safety is confidence and there is a confidence in the use of the known. Progress and news can thus have a lack of confidence and thus be apprehended as uncertain. But, in this process we sometimes forget we all have the same objective: to protect and serve. Fight fires, not progress.



*Bio Stefan Svensson*

Stefan Svensson is an associate professor at Lund University, responsible for the fire laboratory and the experimental work at their Department of Fire Safety Engineering. Dr. Svensson started his career as a fire fighter in the Swedish Air Force in 1986. In 1989 he earned a bachelor degree in fire safety engineering and in 2002 a Ph.D. at Lund University, Sweden. Since 1994 he has been involved in experimental and theoretical investigations on firefighting tactics, including firefighting methods as well as problems of command and control. The safe and effective use of firefighting resources is a particularly important feature of his work, especially in relation to fire safety design of buildings. Also, he is the author of several books, scientific articles and reports. He is involved at the local fire brigade, as a fire fighter/crew commander, and he has the rare ability to apply scientific knowledge in a very practical manner.



**Steve Kerber, PE                      USA**

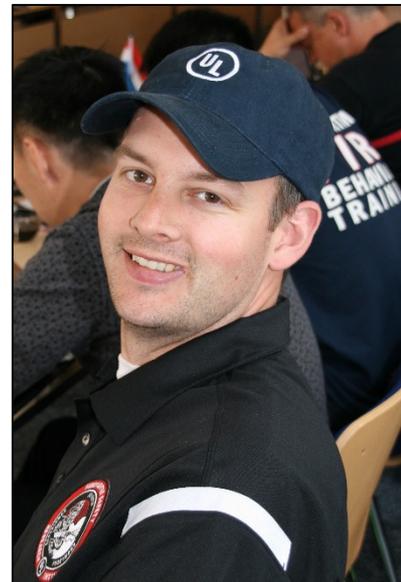
**“Why the Fire Service Needs Research?”**

*Abstract*

This presentation will discuss the research that has been conducted by UL with the fire service over the past decade. The fire service has hundreds of years fighting fires and yet we are no closer to agreeing on the best approach. As the fire environment and technology available to the fire service evolve research is critical from keeping up and providing the fire service with credible information to improve their decision making to assist them in being as safe and effective as possible.

*Bio Steve Kerber*

Steve Kerber is the Director of the UL Firefighter Safety Research Institute. He has led fire service research and education in the areas of ventilation, structural collapse, and fire dynamics. A 13-year veteran of the fire service, with most of his service at the College Park Fire Department in Prince George's County Maryland where he served at ranks up through Deputy Chief. He received his bachelor's and master's degrees in fire protection engineering from the University of Maryland and is currently working on his doctorate at Lund University in Sweden. Steve has also been appointed to the rank of Honorary Battalion Chief by the FDNY and was named the 2014 ISFSI and Fire Engineering George D. Post Instructor of the Year.





**Stéphane Morizot**                      **France**

**“Science and firefighting, the French teaching approach”**

*Bio Stéphane Morizot*

Stéphane was born in 1960, he is married and has 3 kids (21, 12 and 6).

He first joined the fire service as a volunteer in the small town where his parents lived in 1976.

After a one year military service in Civil Defence Service, he joined Yvelines Fire & Rescue Service (western suburbs of Paris) as a professional firefighter in 1980.

He climbed through the ranks from firefighter to battalion chief while he served in several busy stations of the county. Assigned to the



training division, he imported the CFBT concept and developed it in Yvelines county and then trained several others fire services in France and abroad.

He was part of several national working groups organised by the Ministry of the Interior to work on the different fire phenomenas (backdraft and flashover) and how to improve structural firefighting training in France.

In charge of the CFBT group of instructors for Yvelines fire & Rescue service, he has also been involved in different working group (forcible entry, fire gears, hose techniques, PPV) while keeping an operational activity as a battalion chief .

Recently hired by Charente county fire service, he is in charge of preparing CFBT training for the future training center and also has an operational activity as BC in the major station of the county.

He is a regular contributor to a French fire service magazine and has a blog dedicated to fire service training ([www.firetex.fr](http://www.firetex.fr)).

He was part of the first meeting of IFIW organised in Sweden in 2008.



**Ed Hartin**

**USA**

### **“Fireground Expectations”**

#### *Abstract*

This presentation will examine development of expectations during response and application of Building, Smoke, Air Track, Heat, and Flame (B-SAHF) fire behavior indicators in clarifying these expectations on the fireground to improve decision-making in relation to current and expected fire behavior and structural performance under fire conditions.

#### *Bio Ed Hartin*

Ed Hartin, MS, EFO, FIFireE, CFO has worked in the fire service for over 41 years and currently serves as Fire Chief with Central Whidbey Island Fire & Rescue. Ed is Vice President of the USA Branch of the Institution of Fire Engineers (IFE) and as a member of the Underwriters Laboratories Firefighter Safety Research Institute Advisory Board (UL-FSRI).

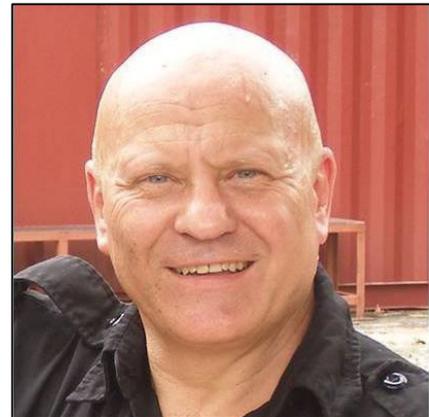


**Paul Grimwood, PhD, FIFireE UK**

### **“The Need for Adequate Firefighting Water in Large, Tall or Complex Building Fires”**

#### *Abstract*

As a means of establishing what an ‘adequate’ amount of firefighting water means, this research undertakes analysis of fire-fighting water flow-rates as deployed to control and suppress over 5,000 building fires that occurred in two fire authority jurisdictions in the UK between 2009 and 2012. In considering the use of the buildings involved in fire and the area damaged by the time the fires were extinguished, it can be suggested that a relationship has been identified between the area of a fire and the quantity (litres/min) of water required to effectively extinguish it. The impact that ‘inadequate’ water might have on the levels of building fire damage is also explored.



Further, the concept of firefighters being expected to occupy fire compartments or fire-involved buildings for what is termed a ‘reasonable’ time-frame (building codes) is dependent on structural elements withstanding exposure to high temperature or long duration fires, whilst maintaining stability for a pre-determined time period. This research then raises the issue and discusses the viability of providing adequate firefighting water for extended interior firefighting operations in large compartments, tall or complex buildings, compared to the alternative provisions of increased passive or active fire protection measures to confine fire spread to more manageable areas. This area of



research is specific to buildings with 'defend in place' or extended phased evacuation strategies, or in other instances where fire service intervention is an important part of the design strategy for a building.

The outcomes of this research is relevant to those responsible for forming regulatory guidance and local standards associated with building design and fire protection in buildings. It will also be useful to fire engineers in developing performance based fire strategies as well as the fire service, who may wish to develop their suppressive capacity and firefighting intervention capability in line with the research outputs.

#### *Bio Paul Grimwood*

Paul Grimwood is in his 44<sup>th</sup> year of service as a fire professional, having served most of his service as a Firefighter in London's west end district. During this period he also worked on detachment to the New York Fire Department during the 1970s. He is currently serving as the Principal Fire Engineer with Kent Fire and Rescue Service in the UK. This work assignment involves close liaison with building design teams across Kent County to ensure performance based designs meet acceptable criteria. Further work involves Crew Commander and Level 2 Commander training as well as operational equipment and deployment strategy reviews. Paul currently sits on several national and regional review panels in the UK in the development of performance based building design guidance and high-rise firefighting tactics.

The author of three books and over 250 industry based articles and technical papers, Paul is a Fellow of the Institute of Fire Engineers and achieved his PhD in Fire Engineering this year through research, based at Glasgow Caledonian University.

#### **Arthur Perlini, PhD          Canada**

##### **"Decision-Making: Burning Issues in the Fire Service"**

#### *Abstract*

The purpose of the present paper is to elucidate the effects of cognitive factors on individual, group and organizational decision-making. Issues discussed will include misconceptions, cognitive biases, rational and naturalistic decision-making, intuition, and how the fire service – its members and crews – can benefit from scientific knowledge and findings in cognitive psychology.



#### *Bio Arthur Perlini*

Dr. Arthur Perlini is Professor of Psychology at Algoma University in Ontario Canada. He holds master's and doctoral degrees from Carleton University (Canada). He has authored numerous scientific papers in the field of personality/social psychology, including the impact of psychological factors on performance. In the past, he has been a contributor to IFIW on the impact of psychological factors in the fire service.



**Art Arnalich, M.Eng**

**Spain/Switzerland**

**'3T firefighting'**

*Abstract*

A proper combination of different tools, techniques and tactics (3t) allows safer, more efficient and more effective firefighting operations. It's all about timing and coordination.

Given the same fire scene and context, different fire services approach the situation using divergent tactics, often with opposite approaches. Actually there is a window of opportunity for different tactics along with every firefighting operation. The key is timing and coordination along with a proper incident assessment.



The "Combined Fire Attack" is one of many examples of this 3t concept bringing together the advantages of exterior offensive water application, positive pressure attack (PPA) and the traditional European antiventilation and gas cooling techniques.

One of the biggest disadvantages of PPA is the rapid fire development in today's ventilation controlled fire environments. Resetting the fire with an exterior attack and using gas cooling before and during interior progression avoids fire development while the PPV fan enforces the desired flowpath and prevents steaming of the attack team.

*Bio Art Arnalich*

Art Arnalich, M. Eng. in Civil and Environmental Engineering, serves as Fire Officer at CERN Fire Brigade based in Geneva (Switzerland). He previously was responsible for the Operational Division at CEIS Guadalajara in the suburban area of Madrid (Spain) developing and implementing operating procedures and training material based on the current ongoing firefighting science research.

Deeply involved in the international fire training community, he currently collaborates in different projects in France, Germany, Canada, USA and Argentina. He takes part in IFIW (International Fire Instructors Workshop) focusing on tactics and fire ventilation and is a member of Underwriters Technical panel for the PPV study.

**Dogan Gurer**

**Turkey**

**"Fireground Tactics: Istanbul Experience"**

*Abstract*

In recent years scientific studies on how to fight fires offered extensive knowledge to fire departments. Especially on western hemisphere firefighting is transforming to become more and more science based than ever before. However this improvements effects western fire departments. There are still number of departments around the world which are not completely part of this network, yet which also may possess some good practices



that fire service community may adopt. Istanbul Fire Department being one of this kind of department may also offer some different fireground approaches to the fireground problems. Comparing these different approaches with western fireground applications may provide interesting insights to common fireground problems.

*Bio Yusuf Doğan Gürer*

Yusuf Doğan Gürer is a fire sergeant in Istanbul Fire Department. He has been a firefighter for 10 years and a professional firefighter for Istanbul Fire Department for six years. He studied international relations at Istanbul University and has a masters degree on disaster management from Istanbul Technical University. He has presented some papers on national fire symposiums. He also attended various international fire courses and meetings.



**Christian Gryspeert**

**Belgium**

**“Education of fire fighters using CFD”**

*Abstract*

CFD is a powerful tool for “calculating fires”. Unfortunately CFD is rarely used for education. There is a great potential in using CFD to demonstrate the difference in fire behavior in several scenarios. Some examples will demonstrate how even “silly” examples will force the firemen to really think about what they expect. CFD gives the ability to “look inside” the smoke. We can visualize temperature distribution, smoke movement, air track,... Those parameters are even available in “real life” if we give our thermal imaging cameras in well-educated hands !



*Bio Christian Gryspeert*

After his university study in mechanical engineering he worked for 10 years in privately held companies (production, engineering and R&D). During that period he was a volunteer firefighter. Since 2005 he is a professional fire officer. In 2007 he followed a course on smoke and heat evacuation. In 2010-2012 he completed the postgraduate in FSE at Ghent University. He has specific interest in Thermal Imaging Cameras and using CFD in the theoretical education of fire fighters.



**Shan Raffel, FIFireE**

**Australia**

### **“Emergency Planning for Tunnels under Construction and Operation”**

#### *Abstract*

Australia is following international trends in road and rail traffic management by building large tunnel systems. These present unique and challenging problems for emergency service responders. The effects of heat and smoke release are magnified, travel distances in Breathing Apparatus can be extended, and the overall resource requirements can be significantly greater than for a similar event above ground. Tunnels under construction present an even greater challenge as many of the fire and live safety features will not be operational. Successful intervention in these environments may require long duration BA and other specialist equipment.



In the space of just a few years, Brisbane has gone from having no tunnels of significance to having the two largest operational road tunnels in Australia. A third 4.6 km road tunnel, the Legacy Way, is currently under construction with a completion scheduled for 2015. With even more road and rail tunnels in the planning stages, the QFRS met the challenge by dedicating a number of staff to ensuring the design, construction and operation was in line with world’s best practice. With the support of the QFRS, Acting Inspector Shan Raffel was successful in gaining a Churchill Fellowship to study all aspects of planning, preparation and response to emergencies in tunnels. The 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 and how this knowledge is being applied by the QFES on major tunnel projects.

#### *Bio Shan Raffel*

Shan has served as a career firefighter in Brisbane, Australia since 1983. His national and international awards include the Australian Fire Service Medal, the “Commendation for Brave Conduct”, “Fellow” of the Institution of Fire Engineers, and “Companion” of the Institution of Fire Engineers. In 2009 he was awarded a “Churchill Fellowship” to research “Planning Preparation and Response to Emergencies in Tunnels” which led to intensive study over a period of 10 weeks in the USA, Canada, Germany, Austria, Sweden, Denmark, Norway and Switzerland.