

# FIRE & LIFE SAFETY IN MODERN CONSTRUCTION



Presented by Mechanical & Mechatronics Engineering, University of Waterloo and Sereca Consulting Inc.

## GAIN INDUSTRY INSIGHT INTO TODAY'S COMPLEX BUILDING ENVIRONMENT

There has been substantial advancement in the field of fire science and the economic and human losses from fires have steadily declined. This, along with refined data gathering methods, has led to significant changes in regulations, methods, and attitudes regarding fire and life safety. Increased understanding of fire dynamics and fire causes warrant a review of the ways that we prepare for and analyze fire events.

### 3 Days of Seminars

**Day 1** - A review of a statistical basis for analyzing fire losses.

**Day 2** - Examines the implications of 6-storey wood framed construction.

**Day 3** - How will the new requirements for integration testing influence you?

**July 7-9, 2015**  
**Live-Burn**  
**Each Day**

### Who Will Attend?

#### BUILDING OFFICIALS - ENGINEERS - ARCHITECTS - FIRE INVESTIGATORS



These seminars will benefit professionals involved in building fire protection design and life safety systems, especially: architects, code consultants, fire protection engineers, building officials, insurers, lawyers, fire investigators, and fire protection personnel who want to obtain knowledge of current trends in building codes and building construction.

### Location & Registration

**Seminar:** Waterloo Region Emergency Services Training & Research Complex (WRESTRC)

1001 Erb's Road, Waterloo, ON

**Live-Burn Demonstrations:** The burn demonstrations will be held in the same complex, at the University of Waterloo Live Fire Research Facility

**Registration:** Includes seminar attendance, parking, light refreshments and buffet lunch and attendance to live-burn tests. Refer to attached schedule. **\$175 per day** or **\$450 for 3 days**. (Taxes and surcharges not included.)

**Click here to register:** [firelifesafetyseminars.eventbrite.ca](http://firelifesafetyseminars.eventbrite.ca)



Waterloo Region Emergency Services Training & Research Complex (WRESTRC)



<b>Day 1 (Tuesday)</b>		<b>July 7, 2015</b>
<b>Fire Causes &amp; Spread</b>		
<b>Statistical Reviews, Underwriting, and Probabilistic Analysis</b>		
<b>TIME</b>	<b>TITLE</b>	<b>PRESENTER/AFFILIATION</b>
8:45–9:00	<b>Introductory Remarks</b>	Dr. Jan Huissoon, Chair, Department of Mechanical and Mechatronics Engineering, University of Waterloo
9:00–9:45	<b>Panel Discussion</b> Using probability as a basis for cause determinations and data gathering for product and code improvement. Moderator: Peter Senez	TBD, University of Waterloo Dan Little, Economical Insurance TBD, OFMEM TBD,
9:45–10:15	<b>Principal Fire Causes and Trends in Fire Losses in Canada</b> Most statistics suggest that the number of fires each year in North America is declining. This presentation reviews the fire loss trends and explores the various Provincial statistics in Canada.	Bruce Robertson, Ontario Fire Marshal
10:15–10:30	<b>Break</b>	
10:30–11:00	<b>Fire Dynamics in Modern Energy Efficient Homes</b> As energy codes increase efficiency of modern homes, what can be expected with respect to fire growth and behavior?	Beth Weckman, University of Waterloo
11:00–11:30	<b>Limiting Ignition Risks</b> Approach to use of fire retardant in synthetic material.	ICL Group TBD
11:30–12:00	<b>Risk of Ignition and Contribution of Furniture to Fire Initiation and Spread</b> Review of 100 fires involving upholstered furniture relative to the risk of ignition and the contribution of the furniture to the spread of fire. Canada’s silence in the development of standards for upholstered furniture despite having identified this as a concern on multiple occasions over the past 40 years.	Peter Senez, Sereca Consulting Inc.
12:00–12:45	<b>Lunch</b>	Buffet
1:00–2:00	<b>Full-Scale Burn Test</b> Participants are invited to witness a full-scale burn studying the burning characteristics of upholstered furniture. The burn test will be on site and participants will walk down to the lab facility.	
2:15–2:45	<b>Fire Detection Technology</b> Despite advances in notification and technology, codes are slow to transition. evaluating detection and notification requirements	Mike Hugh, Simplex
2:45–3:15	<b>Fire Service Investigation &amp; Data Gathering</b> Limitations for the fire service in investigating and gathering statistical information. Resources, budgets, experience, and volunteer versus career.	TBD, Barney Owens, Ontario Fire Marshal
3:15–3:30	<b>Break</b>	

3:30–4:00	<b>Insurance Underwriting – What do Insurers do differently?</b> What information is relied on, where is the information obtained, and is there information that could better inform industry?	Dan Little, Economical Insurance
4:00–4:45	<b>Defining a Statistical Context to Support Codes and Standards Assessment</b> Defining a modified statistical gathering framework studying residential apartment fires to allow for feedback into codes and standards.	Peter Senez, Sereca Consulting Inc.
4:45–5:00	<b>Concluding Remarks</b>	Peter Senez, Sereca Consulting Inc. Beth Weckman, University of Waterloo
<b>Day 2 (Wednesday)</b>		<b>July 8, 2015</b>
<b>OBC 6 Storey Wood-Frame Code Change What Architects, Engineers, Building and Fire Departments Need to Know</b>		
TIME	TITLE	PRESENTER/AFFILIATION
8:30–8:45	<b>Introductory Remarks</b>	Peter Senez/Sereca
8:45–9:45	<b>Panel Discussion, New Code Changes</b> NBC changes, OBC specific requirements, and committee challenges.  Moderator: Peter Senez, Sereca	Andrew Bousfield, Andrew Bousfield Architects Steve Street, Woodworks Chris Thompson, MMAH Nathan Hallman, Aberdeen Homes
9:45–10:15	<b>Evolution of Height and Area Concepts – Where do they come from?</b>	Peter Senez, Sereca Consulting Inc.
10:15–10:30	<b>Break</b>	
10:30–11:00	<b>Fire Behavior in Wood-Frame Buildings</b>	Beth Weckman, University of Waterloo
11:00–11:30	<b>Structural Design Considerations</b>	David Moses, Moses Structural Engineers
11:30–12:00	<b>Considerations for Building and Fire Departments in Enforcing the Code</b>	Mike Seiling, CBO Kitchener
12:00–12:45	<b>Lunch</b>	
1:00–2:00	<b>Test Burn</b>	
2:15–3:15	<b>Fire Loss Experience in Multi-Family Residential Buildings of Combustible Construction and in the Course of Construction Fires</b>	Peter Senez, Sereca Consulting Inc.
3:15–3:30	<b>Break</b>	
3:30–4:00	<b>Mitigating Against Course of Construction Fires</b>	Nathan Hallman, Aberdeen Homes
4:00–4:30	<b>Trend to Mass Timber Buildings</b>	David Warne, LGA Architectural Partners
4:30–4:45	<b>Closing Remarks</b>	Peter Senez, Sereca Consulting Inc.

<b>Day 3 (Thursday)</b>		<b>July 9, 2015</b>
<b>Integrated System Testing of Fire Protection and Life Safety Systems How Should We Undertake/Enforce Integration Testing?</b>		
<b>TIME</b>	<b>TITLE</b>	<b>PRESENTER/AFFILIATION</b>
8:30–8:45	<b>Introductory Remarks</b> Defining Commissioning/Integration Testing, applicable Codes and Standards, and Key Players	Megan Todd, Sereca Consulting Inc.
8:45–9:45	<b>Panel Discussion</b> Benefits to integration (LEED, designs that push the boundaries of the Code, engineered building/systems). How do we document, develop protocol and implement testing? Assurances to Owners and Authorities.  Moderator: Megan Todd, Sereca	Ralph Kaminski, CBO Waterloo John McDonald, Architect Jeff Shantz, Melloul-Blamey Construction Inc.
9:45–10:15	<b>Panel Q&amp;A</b>	
10:15–10:45	<b>Break</b>	
10:45–11:30	<b>The Role of a Commissioning Agent</b> Defining how a commissioning agent ensures systems are integrated and working cohesively without an enforceable Code/Standard/Document to rely on.	Derek Cheung, Building Commissioning Association
11:30–12:00	<b>Impact of Commissioning and Requirement to Integrate Systems</b> Identifying the impact of integrated testing from a systems side and discussion on what happens when systems do not integrate (fail).	James Johnson, The Mitchell Partnership
12:00–12:45	<b>CAN/ULC S1001 Integrated Systems Testing of Fire Protection and Life Safety Systems and Fire Protection Commissioning</b> Background into the development of a recognized Canadian standard. This includes an overview of content and future reference in the next edition of the NBC/NFC.	Simon Crosby, Randal Brown Associates.
12:45–1:00	<b>Burn Test Overview</b> Optional interaction as a Commissioning Agent	Megan Todd, Sereca Consulting Inc.
1:00–1:45	<b>Lunch</b>	
1:45–2:45	<b>Burn Test</b>	
2:45–3:15	<b>Discussion</b> Open forum to discuss the results of the Burn Test and integration observances. Opportunities for suggestions, improvement and questions.	
3:15–3:30	<b>Summary of Commissioning/Integration</b> The future of Integration Testing and where we hope the new requirement of OBC Sentence 3.2.4.6. will lead.	Megan Todd, Sereca Consulting Inc.
3:30–3:45	<b>Closing Remarks</b>	Peter Senez, Sereca Consulting Inc.