



CFSA News

IN THIS ISSUE

Fall 2004

VOLUME 16, ISSUE 2

- 3 Editor's Note
- 3 Scheduled Events
- 4 Researchers at IRC investigate Fire-Detection Alternatives for Canadian Correctional Facilities
- 5 NFPA Code Development Process
- 6 CFSA Scholarship Awards
- 7 Safety and Security Issues
- 9 ULC Standards up for Public Comment
- 10 Ontario Building Code Commission Hearing 2004-47 – Residential Sprinkler Protection
- 11 Fire Code Violations Equals Jail Time
- 11 Bill 141 – Home Fire Sprinkler Act, 2004
- 12 Safe Practices for the use of Alcohol-based Hand Rinse in Care and Treatment Occupations
- 12 Residential Fire Scenario Analysis in Ontario 1995-2003
- 13 Analysis of Fire Statistics in Canada 1986-2000
- 13 Extinguishment of Cooking Oil Fires by Water Mist Fire Suppression Systems
- 13 Bill 141 – Home Fire Sprinkler Act, 2004
- 13 Investigation of Uncertainty in Egress Models and Data
- 14 Toronto Firefighter's Toy Drive
- 16 Residential Sprinkler Systems – When will Canada Step Up?
- 19 Member's Forum
- 20 CFSA Membership Application form
- 21 Corporate Members

President's Message



History has shown us how essential it is to have an emergency evacuation plan in place for both home and work. However even after events like 9-11 and approximately 100 deaths in homes annually in Ontario, large numbers of businesses and residences still ignore the need for emergency planning.

I am fortunate to work with a number of large Property Management companies who are diligent in ensuring the Fire Safety Plan for each of their buildings is up to date, that the training of Emergency Fire Wardens is a continuous process and the requirement to hold fire drills is adhered to. The smallest building that I have been involved with was a single storey office building, having no fire alarm or sprinkler system, with 12 employees. The tenant in this building has had 2 employees trained as Fire Wardens and holds an annual fire drill. This employer has realized that there is a danger of fire even in a small building and has been diligent in addressing employee safety.

Wouldn't it be nice if we could say this about all building owners and employers? Unfortunately, as no return can be seen for the "down time" involved, some employers/business owners do not participate in emergency planning and take the chance that "it will never happen to us".

It would appear that a large part of the retail business has taken this approach, however one of the largest Shopping Malls in North America is an exception. The management of this Mall is diligent in providing emergency evacuation training for all Mall management employees including their office, maintenance, security, customer service and cleaning personnel. Every employee has a role to play in the evacuation of the Mall and this is practiced in an annual fire drill. The tenants of each of the 360 stores are also offered emergency evacuation training for

their employees and the majority of stores send employees to the training and participate in the fire drill. Unfortunately not all retail businesses address fire safety planning. If this can happen in a large shopping mall then it can and should happen in all retail businesses.

I have heard comment that some Insurance Companies do not participate in training and fire drills when held in the building where they lease office space. From experience I know that some insurance companies do ensure the appropriate staff are trained and fire drills are held. It is hard to imagine an insurer who would not address the safety of their employees but I guess anything is possible.

Manufacturing industries have health and safety programs in place intended to reduce injuries in the work place. The success of these programs i.e. the reduction in workplace accidents, is rewarded by lower WSIB rates, but what incentive is in place to ensure fire safety and emergency planning is provided by employers and homeowners?

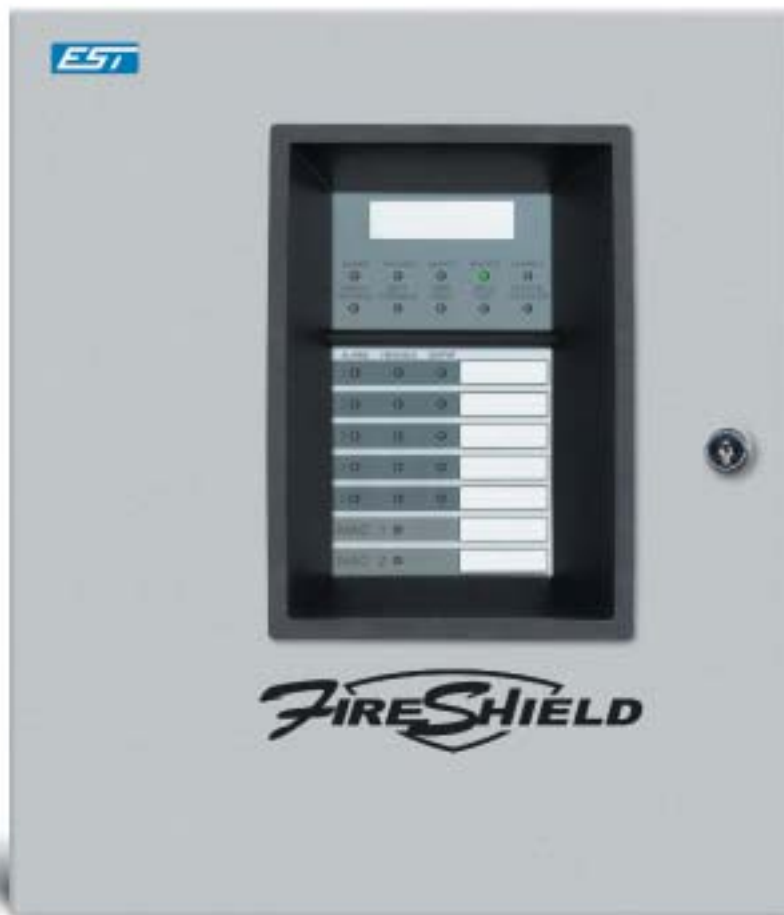
It might be that *Bill C-45* (now section 2.17 of the *Criminal Code of Canada*) will be the instrument that encourages more building owners /employers/ businesses to participate in emergency planning. This Bill became law on March 31, 2004 and now makes it possible to have charges laid under the *Criminal Code of Canada* if, due to the lack of education of an employee with regards to all aspects of their safety at work, there is an occurrence in the work place that results in injury or death. Those charged can be at the Corporate, Management or Supervisory levels.

CFSA intends to keep our membership updated on information regarding *Bill C-45* by way of Dinner Meeting seminars or by articles in future newsletters.

Alan Kennedy
CFSA President



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Editorial



Editor's Note

As Christmas nears at an alarmingly quick rate (less than one month when you receive this newsletter) I can't help but to think about all of the families whose lives have been disrupted by home fires over the last year, especially for those who lost family members. A recent fire tragedy occurred in Ontario where 7 children and a mother succumbed to a rural home fire, something no family in any part of the world at any time of the year, should endure. Unfortunately, bringing to light once again, the importance of residential (home) fire protection.

In this edition of the CFSA newsletter, both the Code Corner and the feature article discuss residential sprinkler systems. The Code Corner article outlines a recent decision made at the Building Code Commission on the installation of networked residential sprinkler systems. The feature article discusses the need for a more aggressive approach to fire protection in homes.

Also featured in this edition are the September and October dinner meeting overviews on "Your Role in the Development of NFPA Codes & Standards" presented by guest speaker Gary Taylor, NFPA and "Safety and Security Issues" presented by guest speaker Barry Weaymouth of Weaymouth and Associates. In addition, abstracts are provided on new reports released by the National Research Council including "Investigation of Uncertainty in Egress Models and Data", "Analysis of Fire Statistics in Canada" and "Extinguishment of Cooking Oil Fires by Water Mist Fire Suppression Systems".

On behalf of all the board members, I personally wish all of you a very safe and joyous holiday season and New Year.

Yours truly,

Janet O'Carroll, C.E.T., CFPS

scheduled events

CFSA Dinner Meetings

January 21, 2005

Speaker: Daniel Dye, Marioff Inc., Canada

February, 2005 (TBA)

March, 2005 (TBA)

Technical Sessions

February 2, 2005

Electromagnetic Locks and the Ontario Building Code
Speaker: Jeff Stoner, Rutherford Controls Int'l Corp.

March 2, 2005 (TBA)

The 2004 Update of ULC S536 and S537 Standards and What You Need to Know
Speaker: Ken Baird, Leber/Rubes Inc.

April 2005 (TBA)

Other Events for 2004

January 26-28, 2005

NFPA Suppression & Detection Research
Application Symposium
Orlando, FL

May 1 to May 5, 2005

53rd Annual OAFIC Conference & Trade Show
Toronto, ON

May 29 to June 3, 2005

FCABC Annual Conference & Trade Exhibition
Vernon, BC

June 6-10, 2005

NFPA World Safety Conference & Expo
Las Vegas, Nevada

Researchers at IRC investigate Fire-Detection Alternatives for Canadian Correctional Facilities

Nuisance fire alarms can be a problem in Canadian correctional facilities when inmates intentionally activate or damage in-cell smoke detectors, which are currently required under the *National Building Code of Canada*. These alarms result in increased risk to guards and inmates while the detector is out of service, time lost as guards investigate the cause, and significant costs to examine and replace damaged detectors.

To find a solution, the Correctional Service of Canada (CSC) initiated a project with researchers in IRC's Fire Research Program and Ken Richardson Fire Technologies Inc. They set up a series of full-scale tests in temporarily vacated correctional facilities in Kingston, Ontario, to determine if in-cell smoke detectors could be moved outside of cells and still provide an equivalent level of fire protection. In particular, they were interested in ensuring that the risk to inmates in the cell of fire origin would not exceed critical limits for carbon monoxide, carbon dioxide and temperature if the detectors were located outside the cell.

The researchers developed various test scenarios that would be representative of the fires that actually occur in cells, while still posing a reasonable challenge for the detectors expected to respond. These scenarios involved different fire sources (such as CSC-issue mattresses and clothing, and newspaper) for both open-front and closed-front cells. Depending on whether the cell had an open or closed front, the researchers varied the location of the fire source. They then recorded the times of response for in-cell, outside-cell and duct detectors, and measured the conditions inside the cell of fire origin for a full 15 minutes.

In all scenarios, the researchers concluded that early detection with smoke detectors in an exhaust duct adjacent to a cell was equivalent to that provided by in-cell smoke detectors in both open-front and closed-front cells. Specifically, the researchers found that moving smoke detectors from inside to outside open-front cells, to either a duct or the corridor, did not affect reaction times enough to allow critical conditions to build up in the cell where the fire originated. For closed-front cells, they found that only smoke detectors relocated to an exhaust duct provided an equivalent level of fire detection. In some cases, smoke detectors moved to the corridor allowed critical conditions to build beyond acceptable levels in the cell of fire origin. With the results from this project, CSC now has the technical information it needs to propose a reliable, cost-effective alternative to in-cell smoke detectors to the authority having jurisdiction.

Specific questions about this project and its findings can be directed to Dr. Joseph Su at (613) 993-9616, fax (613) 954-0483, or e-mail joseph.su@nrc-cnrc.gc.ca.

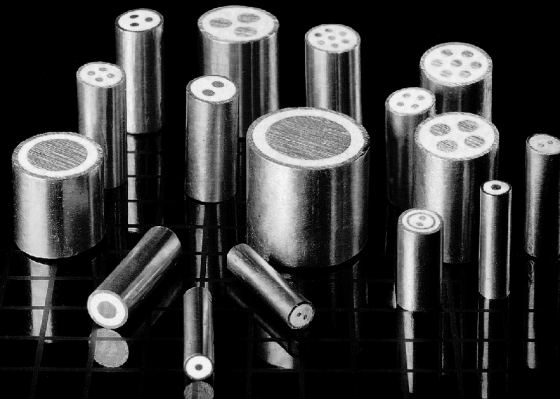
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Dinner Meeting reservations, technical sessions, and much more.

NFPA Code Development Process

This article was provided by Rocky Mino, Technical Consultant in the Life Safety Services Group for Leber/Rubes Inc.

On September 22, 2004, Gary Taylor of what company? presented information on the National Fire Protection Association (NFPA) code development process to the Canadian Fire Safety Association (CFSA) members and guests to provide a better understanding of this involved and lengthy process.

It is well known that NFPA develops and updates codes and standards concerning all areas of fire, life and building safety. There are presently over 300 NFPA codes and standards relating to fire, which are used throughout the world and there will always be the need for updates, revisions and in depth research on possible new codes or standards.

The process for developing a new code is an open process, meaning that anyone can submit a proposal for a new code or standard. Once a proposal has been submitted, it is sent for a preliminary review by the Standards Council. If the proposal is seen as appropriate, it is then printed in a variety of publications, which ask for the following:

- Comments on the proposed project,
- Information on organizations that may be involved in the subject matter of the proposed project,
- A listing of available resource material,
- An indication of who is willing to participate in the project.

After this stage, the Standards council reviews the project and any public comments resulting from the publications.

If the Standards Council determines a need for the proposal, a technical committee is formed. This technical committee consists of 6-7 thousand people with a wide range of expertise. All of these individuals



are volunteers who are overseen by the Standards Council (consisting of 13 members), who are appointed by the NFPA Board of Directors. The Standards Council oversees each project in order to ensure that the process is fair. The expertise within the technical committee is balanced to make sure that a single interest is not represented by more than one-third of the committee. Expertise classifications include the following:

- Insurance,
- Consumer,
- Installer/maintainer,
- Labor,
- Enforcing Authority,
- Manufacturer,
- Applied Research/Testing Laboratory,
- User,
- Special Expert.

Once the technical committee has been formed, it will draft an initial version of the new document. The next step is to issue

public notices asking for any interested individuals/parties to submit any other proposals to be included within the new document within a 24-week time period.

After the call for proposals, the technical committee then holds meetings over a 3-month period to review all submitted proposals and hear from anyone wishing to address the committee regarding a proposal. Simultaneously, the committee develops its own proposals to implement into their report. A two-thirds approval vote is required for approval of the actions of any proposals. If the committee revises or rejects any proposals, documentation must be included within their report stating reasons for their actions. All proposals are then presented in the Report on Proposals (ROP), which is published in a wide variety of publications and available for download or in complete copy. If the report receives two-thirds approval, it continues to the next step and if not, it is returned to the committee.

The next phase is a 60-day comment period, which allows anyone to submit a public comment on the proposed changes in the ROP. Once the 60-day comment period is over, the committee will meet to determine actions on the comments. Again, a two-thirds vote must be reached to allow approval on comments, which must then have the reasons for revising or rejecting the comments published. This report is called the Report on Comments (ROC) and is available for review for seven weeks.

The ROP and ROC are then submitted for open debate at one of the NFPA's bi-annual membership meetings, which anybody is allowed to attend. The Reports must then be voted on by members and only members of record for 180 days may vote. After the report has been discussed extensively, ensuring that all views have been made public, an informed NFPA membership votes to approve, amend, return a portion of the Report to the Committee, or return the entire Report to the Committee. Any amendments coming from the meeting are then voted on by the technical committee for approval.

Adoption of a code or standard is different from one jurisdiction to the next. The easiest way is to have the code or standard referenced in a text of the law (i.e. *National Building or Fire Code*, etc.) or rule site it by its title. If local laws prevent this, the code or standard can be adopted by transcription, which requires the entire text to be written into the law.

From the presentation given by Gary Taylor, we see that the development process is quite lengthy but necessary. The lengthiness of the process allows for a higher quality document to be produced. The level of expertise within the process and the availability of input from any individuals who wish to do so, allows for a wide range of aspects, of the document in question, to be covered.

The CFSA would like to thank Gary Taylor for his insightful and informative presentation.

CFSA Scholarship Awards

At the Annual General Meeting this April, all but one (1) of the students who was to receive an award from the Canadian Fire Safety Association (CFSA) Scholarship Committee where unfortunately taking exams.

At the September dinner meeting, the students were presented their award by Rich Morris, Scholarship Committee Chair.

CFSA would like to thank again the three (3) notable and generous fire protection consulting companies who stepped forward to donate funds for the scholarships:

- Leber/Rubes Inc.,
- Randal Brown & Associates,
- Nadine International Inc.

Due to the assistance from these three companies, the CFSA was able to offer the substantial scholarships, given to the top fire protection students under the following categories:

CFSA LEBER/RUBES INC. AWARD

Presented to: **Ashley Konidis** – Seneca College

Presented to a TOP year 2 STUDENT of a 3 year Fire Protection Technology Course with exceptional overall skills in Fire Alarm Technology and an academic proficiency of 3.25/4.00.

CFSA RANDAL BROWN & ASSOCIATES AWARD

Presented to: **Pavlo Babayev** – Seneca College

Presented to a TOP year 2 STUDENT of a 3 year Fire Protection Technology Course with exceptional overall skills in Codes/Standards Technology and an academic proficiency of 3.25/4.00.

CFSA NADINE INTERNATIONAL INC. AWARD

Presented to: **Michael Thomas** – Seneca College

Presented to a TOP year 2 STUDENT of a 3 year Fire Protection Technology Course with exceptional overall skills in Fire Suppression Technology and an academic proficiency of 3.25/4.00.

CFSA FIRE SAFETY AWARD

Presented to: **Jake Meder** – Seneca College

Presented by the CFSA and funded by Leber/Rubes Inc., Randal Brown & Associates and Nadine International Inc. to the TOP STUDENT having completed year 2 of a 3 year Fire Protection Course with outstanding leadership, motivational and technical skills and overall academic proficiency.

Safety and Security Issues

This article was provided by Rocky Mino, Technical Consultant in the Life Safety Services Group for Leber/Rubes Inc.

On October 20, 2004, Barry Weymouth of Weymouth and Associates, Inc. provided a seminar on Safety and Security for Canadian Fire Safety Association (CFSA) members and guests. Weymouth and Associates, Inc. is a security systems, management, hardware and personal safety Consulting firm. They have had over 270 projects world wide in over 360 buildings.

The issues that Barry covered were as follows:

- Security concepts,
- Security planning and design principles,
- Similarities between safety and security systems,
- Interfaces between various systems,
- Conflicts with safety codes,
- Preferred hardware and equipment to be used by authorities having jurisdiction, and
- Certification of security system installers.

Security Concepts

Most security design specialists strive to embrace the principles of the “Onion Skin Concept”. This encompasses a hierarchy of zones or rings of security, applied around and throughout the entire project and site to protect personnel and physical assets. In addition to the “Onion Skin Concept”, the security practitioner applies the principles of CPTED (Crime Prevention Through Environmental Design) to ensure the design is providing appropriate measures to respond to all foreseeable or predictable events as well as those, which are less likely or unpredictable. The principles of CPTED are as follows:

- Place unsafe activities in safe areas where there is natural surveillance and supervision.
- Provide appropriate set backs for buildings on site as dictated by the Threat and Risk Analysis.
- Design the exterior of a structure so it is hard to climb and/or hide up against.
- Minimize the number of exterior openings at or below grade.
- Protect all building openings against entry or attack.
- Provide for extra conduit for growth and changes in systems.
- Design walls to resist penetration by intruders possibly using cars, hand tools, explosive devices, etc.
- Provide sufficient space in lobby or entry areas for verification, identification, and screening of users.
- Provide adequate space for maintaining security equipment.
- Protect all utilities and control panels from disruption by unauthorized persons.
- Design project elevators, stairways and automated locking mechanisms in such a manner that they shall not compromise security during emergency situations or evacuations.
- Design project lighting for the proper illumination in coordination with CCTV cameras, reduce glare, increase the field of view, and permit safety and security custodial staff to have clear lines of sight in well illuminated areas.
- Design the project perimeter to be well defined and supported by natural barriers such as landscaping/terracing, mechanical barriers such as walls, bollards, wedges, and

planters, fences, buried sensors, proximity sensors, and dynamic/organizational methods such as guards, patrols or observational areas providing clear lines of sight.

By using the “Onion Skin Concept” and the basic principles of CPTED, a security specialist can develop static/physical security and dynamic/operational security solutions, technical/electronic access control, point monitoring and security management approaches to ensure the needs of all clients are identified and addressed. Security specialists prefer that their input be sought during the earliest stages of planning and designing facilities.

Similarities Between Safety and Security Systems

Security and safety systems are similar in nature as to their make up and how they operate, they all are processor based. These systems are designed to provide the occupants of a facility with a secure and safe environment as well as providing peace-of-mind and a comfort level to all. All security and safety systems are logic driven and provide memory retention capabilities. Most systems are addressable and provide internal diagnostic mechanisms that maintain the integrity of the systems. The systems are very sophisticated and intelligent, conducting multiple functions at any given time.

Today’s systems are compatible and can work together, however, this is very rarely seen. It can be seen in rare circumstances where a facility has multiple building applications and where it makes sense for security and life safety systems to relay information back and forth to the various command and control stations.

Interfaces Between Various Systems

The majority of interfaces between fire/life safety systems and security systems are one-way channels providing information from the fire system to the security system via a dry contact interface. These communications usually inform the security system of an event requiring the security system to release door locks or the removal of the power to certain door locking mechanisms to permit them to open in a single exiting motions application.

However, security systems do provide two-way communication, command and control between building automation and control systems, elevator control systems, CCTV camera systems, intercom systems, asset tracking systems, time and attendance systems, burglar alarm systems, telephone systems, duress alarm systems, paging systems, detention facility door control systems, human resource employee record systems and many others.

With the current level of technology, there are very few systems that are not compatible, to some degree, and it is only a matter of time until all systems being developed are able to communicate with each other in two-way communication mode.

Conflicts With Safety Codes

Designing appropriate fail-safe security system applications at times can come in contravention with life safety codes. This is when the security design specialist has to be very creative and know the various products or applications available to permit him or her to achieve an acceptable solution. Many building and fire/life safety inspectors have gone to job sites with an open mind and have accepted solutions that may not exactly be as per written code.

There have also been many situations that overtime have been reversed due to innovations in product lines or the AHJ's have, with time, taken a different stance on certain ap-

plications. At the same time, there have been instances where inspectors will not waiver from the code. In these situations, the projects rely on a code consultant to intervene and present a solution.

Preferred Hardware and Equipment to Be Used by Security Designers and Clients

Security specialists are moving to the use of fail secure electric strikes as they provide protection from the unprotected side of the door and permit unimpeded egress from the protected side of the door during an emergency situation. These fail secure locks will remain secure during a power failure. Card readers can be installed on the unprotected side of the door providing access through the door to authorize personnel. Strike and latch bolt position monitoring switches permit exiting through the door without setting the door into an alarm condition.



It is recommended that touch sensitive type panic hardware having an adjustable delay feature on emergency exit doors and doors that provide access to exits. This type of equipment provides restricted use of emergency exit doors during normal operational and unimpeded egress during emergency situations. These doors can also be equipped with card readers to allow authorized access at all times.

Security designers are starting to move away from using electromagnetic locks or shear locks in their designs. The reasons for this is that AHJ's are questioning the use of these locks and that their use in certain areas provides little, if no, protection during a power outage. However, there are still instances that electromagnetic locks are more practical.

Trade Certification/Security Suppliers and Installers

The Province of British Columbia (BC) has an Alarm Technician Trade Qualification requiring alarm technicians and installers of low voltage wiring and equipment to be licensed by the Province. The TQ Alarm Licensed Technician can buy and install alarm panels with outside monitoring features. These technicians can also install low voltage wiring required for all integrated security systems. This qualification can be obtained by attendance at a 2-year college program in BC. Companies in BC can register annually by submitting a fee of \$500. Technicians pay an annual fee of \$75 to be licensed. This has been beneficial to BC as it has help clean up the alarm industry and prevent free lancers from giving the industry a bad name.

From the presentation given by Barry Weaymouth, it can be seen that the development of Security Systems is a sophisticated and tedious process. However, thanks to this, buildings security systems provide safety to the building occupants. The CFSA would like to thank Barry for the very informative seminar as your time and knowledge is much appreciated.

ULC Standards up for Public Comment

The following ULC Standards are up for the mandatory 60-day public comment:

ULC Standard	Name	Draft/Edition	Expires
ULC-S112	Standard Method of Test of Fire and Smoke Damper Assemblies	1st Draft, Proposed 3rd Edition	2004-12-29
ULC-S114	Standard Method of Test for Determination of Non-Combustibility in Building Materials	1st Draft, Proposed 3rd Edition	2004-12-08
ULC-S115	Standard Method of Fire Tests of Firestop Systems	2nd Draft, Proposed 3rd Edition	2004-12-06

To obtain copies of these documents contact: Brian Murphy, Standards Manager by E-mail: brian.p.murphy@ca.ul.com, Tel: (866) 9373-ULC, Fax: (416) 757-9540 or visit www.ulc.ca for more information.

NEW ULC Standard

In October, 2004, Underwriter's Laboratories of Canada release the new standard ULC-S127-04, "Standard Corner Wall Method of Test for Flammability Characteristics of Non-Melting Building Materials".

For more information on this or other ULC Standards visit www.ulc.ca.



Editor: Janet O'Carroll

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(per issue, GST extra)

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1/4 page	\$50
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All advertisements are required to be camera ready.

Closing dates for submissions are as follows:

Issue #1 – May 20	Issue #3 – Nov. 19
Issue #2 – Aug. 19	Issue #4 – Feb. 17

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Interested in forming a new chapter? Call CFSA at (416) 492-9417.

Code Corner

Ontario Building Code Commission Hearing 2004-47 Residential Sprinkler Protection

This article was provided by Cyril W. Hare, Senior Associate in the Life Safety Services Group, Leber/Rubes Inc.

At a recent hearing before the Building Code Commission (BCC), the panel recognized the installation of residential sprinkler protection in single family dwellings in conformance with NFPA 13D as meeting the sufficiency of compliance provisions of the Ontario Building Code.

This issue involved an interpretation of sentences 3.2.5.13.(4) and 7.6.2.3.(4) of the Ontario Building Code. During the construction of a luxury home the property owner decided to have a residential sprinkler system installed. He selected a network style sprinkler system designed and supplied by Uponor Canada Inc. A network residential sprinkler system combines the domestic water system piping with the sprinkler system piping. When the local building official saw the network sprinkler system he asked the owner to submit drawings for review.

The local building official was not familiar with the installation of residential sprinkler protection and contacted the Building Codes Branch for advice. The code advisor reviewed the requirements of the *Ontario Building Code* and advised the local official that the installation of residential sprinkler protection contravened two sections of the Code. These requirements were seen to apply to all residential sprinkler systems and not exclusively to a network system.

Sentence 3.2.5.13.(4) requires that the



number of sprinklers connected to a domestic water supply be limited to fewer than 9 sprinkler heads. This requirement effectively prohibited the installation of residential sprinklers unless a separate water supply was provided for the sprinklers in the house. An average house will need approximately 30 sprinkler heads and the house in question required far more than that.

Sentence 7.6.2.3.(4) required the provision of back flow prevention where a fire protection system is connected to a domestic

water system. This requirement is impossible to meet with a network system since the piping for the domestic system and the sprinkler system are the same.

The local building official felt that he had no alternative except to reject the plans. He saw the merit in the installation of sprinkler system and suggested that the applicant submit an appeal to the BCC.

A hearing was held on September 23, 2004. The applicant was represented by Leber/Rubes Inc. Chief Fire Prevention Officer Brian Maltby of Brampton Fire and Emergency Services was called as a witness by the applicant. Chief Maltby's testimony supported the installation of residential sprinkler protection. He was able to speak first hand regarding the success of sprinkler protection in a residence in Brampton and also testified to the tragic results of similar fires in un-sprinklered residence.

The applicant provided information to the panel regarding the requirements of NFPA 13D and the design of the network sprinkler system. The system utilizes 13 mm (1/2 inch) piping to supply the domestic system and sprinkler heads. The system is networked through a series of 4-way fittings that supply the sprinkler heads. The system is hydraulically designed to meet the most demanding water flows at the most remote sprinkler heads. Since the piping is common

with the domestic plumbing, no back flow prevention is required since the water in the piping changes every time that a cold water fixture is used.

The local building official provided evidence that he was not opposed to the installation of residential sprinkler protection and in fact supported it, but found that the *Ontario Building Code* could be interpreted to prohibit their use and he believed that the issue should be resolved by a BCC hearing.

The Building Code Branch provided an opinion that the literal wording of the *Ontario Building Code* could be considered to prohibit the installation of residential sprinkler protection as it was proposed and that they were not opposed to residential sprinkler protection provided certain standards were met.

The BCC ruled that the installation of the networked residential sprinkler system should

be considered as satisfying the requirements for sufficiency of compliance with the technical requirements of the *Ontario Building Code* subject to the following conditions:

- The system must be installed in compliance with NFPA 13D.
- All components used in the system must be suitable for contact with potable water.
- The design and installation of the system must be reviewed and approved by a Professional Engineer.

The issue was resolved to the satisfaction of all of the participants. This ruling applies only to this installation, although it can be used as a precedent for any future installations. Ultimately the *Ontario Building Code* and the *National Building Code* must be changed to ensure that there are no barriers to the installation of residential sprinkler protection.

Fire Code Violations Equals Jail Time

It is rare to see a building owner receive jail time for fire code violations in Ontario. Generally, most building owners receive fines based upon their level of non-compliance.

However, on Monday, September 13, 2004, in Niagara Falls, Ontario, a landlord received 15 days jail time and his company was fined \$20,000.00 for fire code violations that stretched back over four years.



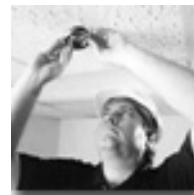
Bill 141 – Home Fire Sprinkler Act, 2004

Bill 141 – *An Act to Amend the Building Code Act, 1992* respecting home fire sprinklers (or *Home Fire Sprinkler Act, 2004* for short), a private members (if one member “member’s”, if more than one, “members”) bill, received its first reading on November 2, 2004 and second reading on November 25, 2004.

If passed, the act will amend section 8 of the *Building Code Act, 1992*, as amended by the *Statutes of Ontario, 1997*, chapter 30, Schedule B, section 7, 1999, Schedule M, section 5, 2002, chapter, section 14 and 2002, chapter 17, Schedule F, Table with the following subsection:

“(1.0.1) No person shall construct a new detached house, semi-detached house or row house that is not equipped with a sprinkler system that conforms with the regulations.”

CFSA will keep you updated on this new bill, as it progresses.



Safe Practices for the Use of Alcohol-Based Hand Rinse in Care and Treatment Occupancies

In June 2004 the Office of the Ontario Fire Marshal released the following information on their website. For more information visit www.ofm.ca.

This document provides information to address potential fire safety hazards related to the installation and use of alcohol-based hand rinse in Care and Treatment Occupancies (i.e. hospitals, nursing homes and long term care facilities).

Containers of hand rinse are typically located on wall-mounted holders from which a small amount can be dispensed prior to it being applied to hands. Two types of hand rinse that



have been identified are the gel type and the foam type. The gel type product is classified as Class IB flammable liquid but is exempt from Section 4.2 of the *Ontario Fire Code* as a pharmaceutical product in closed containers having a capacity not more than 5 L [see Clause 4.2.1.1.(2)(d)]. The foam type product is classified as a level 1 aerosol (NFPA-

30B) and is not specifically addressed in the *Ontario Fire Code*.

Simple field tests have shown that a lit match can readily ignite the foam type product (aerosol) and it will burn very rapidly until all of the flammable components are consumed. As the product burns, the foam collapses to form a liquid that can spread and continue to burn.

These products are dispensed and used in very small quantities; thus the fire hazards they present are minimal. However, the following simple precautions are recommended to enhance the level of fire safety in Care and Treatment Occupancies.

1. Avoid exposure to open flames during and immediately after application. A warning should be provided to potential users of the product e.g. signage or instruction to staff.
2. Install the dispensers at least 3 feet (1 m) from any open flame or other ignition source. Locate the dispensers away from sources of heat such as radiant heaters that could raise the container temperatures to above 120 deg F (49 deg C).
3. Although not specifically covered by Section 4.2 of the *Ontario Fire Code*, stock of gel type products not for immediate use should be located in a properly protected storage room or cabinet in accordance with Subsection 4.2.9 or 4.2.10. Subsection 3.2.5. of the *National Fire Code of Canada (1995)* should be used for storage requirements for the foam type (aerosol) products.
4. Where the dispensers are installed in corridors, not more than one dispenser should be located at each entry into a room. This will minimize the potential for fire spread.

Residential Fire Scenario Analysis in Ontario 1995-2003

This abstract was excerpted from the National Research Council, Institute for Research in Construction full report (No. 173).

This report identifies some very important features of fatal fires in Ontario. It locates, for example, the victim's position in the house and tentatively explains why the victims were unable to save themselves. It provides sufficient details to indicate research that can be undertaken to help make homes a safer place to live.

Based on the Ontario data for the period of 1995-2003, residential fires occurred most frequently in the kitchen and cooking areas. However, fatal fires are more frequently in living rooms (45.1% of fatalities) and are in general caused by a smoker's material such as cigarettes, cigars, matches, lighters, etc. used in conjunction with smoking (37.4% of fire deaths). When deadly fire breaks out, most of the time, upholstered furniture is the first material to be ignited (26% of fire deaths). The most probable levels for fatal fires to occur in Ontario houses are on the ground floor (59% of deaths), the second stories (17.3% of deaths), the basements (14.8% of deaths), and the third floors (3.9% of deaths). Fires kill because in part, the victims are either too young or too old to react quickly and effectively to a fire emergency.

For more information or to obtain a copy of the full report, visit www.irc.nrc-cnrc.gc.ca/ircpubs

Analysis of Fire Statistics in Canada 1986 – 2000

This abstract was excerpted from the National Research Council, Institute for Research in Construction full report (No. 172) released October 26, 2004 and published by the Institute for Research in Construction, National Research Council Canada.

“Fire is a challenge faced by all society and Canada is no exception. The consequences of fire in terms of human lives and material damages are an important tool to aid in identifying potential hazards in the built environment. The analysis of the fire data gathered for the period 1986 – 2000 reveals that the fire incidents sloped downward over the last few years, the number of fires in this country is still high. Ontario, Quebec, Alberta, British Columbia, Manitoba, and Saskatchewan are

the provinces in which 90% of the fires occurred and over 92% of these fire costs were recorded. Residential houses are the properties most affected: 42% of the fires and approximately 80% of the fire deaths took place in residential properties. Cooking equipment, heating equipment, electrical distribution equipment, and smoker’s materials are the leading factors responsible for fire in Canada. They account for 42% of the fires across the country. Mechanical and electrical failures are also important circumstances leading to fire incidents.”

For more information or to obtain a copy of the full report, visit www.irc.nrc-cnrc.gc.ca/ircpubs

Extinguishment of Cooking Oil Fires by Water Mist Fire Suppression Systems

This abstract was excerpted from the National Research Council, Institute for Research in Construction full report (NRCC-43133) on extinguishments of cooking oil fires by water mist fire suppression systems.

“A series of full-scale experiments were conducted in a mock-up commercial cooking area to study extinguishing mechanisms and effectiveness of water mist against cooking oil fires. The impact of water mist characteristics, such as spray angle, droplet size, flow rate, discharge pressure and type of nozzle, on the effectiveness of water mist against cooking oil fires was investigated. A series of oil splash experiments were also conducted to determine if the oil was splashed by water mist. In addition, the change in oil composition during heating and fire sup-

pression was determined using Fourier Transform Infrared (FTIR) technique.”

The study showed that cooking oil fires were very difficult to extinguish, because they burned at high temperature and re-ignited easily due to changes in oil composition during heating and fire suppression. The water mist systems developed in the present work effectively extinguished cooking oil fires and prevented them from re-igniting. The spray angle, discharge pressure, and water flow rate were important factors to determine the effectiveness of water mist in extinguishing cooking oil fires.”

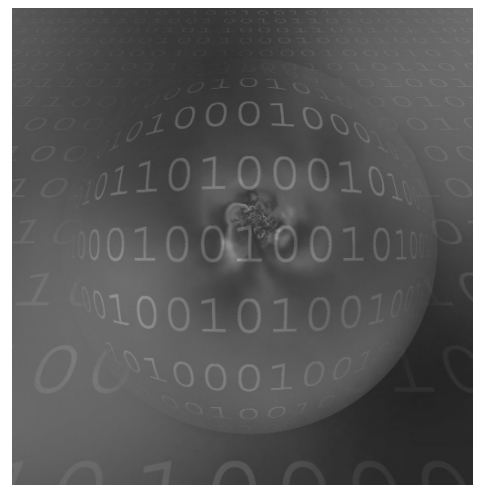
For more information or to obtain a copy of the full report, visit www.irc.nrc-cnrc.gc.ca/ircpubs

Investigation of Uncertainty in Egress Models and Data

This abstract was excerpted from the National Research Council, Institute for Research in Construction full report (NRCC-47308).

The use of computational analysis to predict building egress during emergency situations has been steadily increasing in recent years. However, there is a general lack of data for us in computational egress models, and there are no benchmarks against which to test the predictive capability of the computational egress models. As a result, how well these models are able to predict a priori the time to egress a building is generally unknown, as are those variables that have the most significant impact on the predicted outcomes. To begin addressing the issues of evaluating the predictive capability of egress models and the uncertainty and variability associated with the models and the available data, a three-year research effort is underway. The study, methodology and preliminary results are presented.

For more information or to obtain a copy of the full report, visit www.irc.nrc-cnrc.gc.ca/ircpubs



Toronto Firefighter's Toy Drive



The various Fire Departments that make up today's Toronto Fire Services have been involved with humanitarian initiatives during the Holiday Season as far back as the 1950's. Our involvement began when firefighters fixed bikes and used toys to give as Christmas gifts to needy children. Five decades later, the Toronto Firefighters' Toy Drive has grown into a much larger operation.



Firefighters receive donations two ways. People drop off most gifts at our 81 Fire Stations. Another popular way is when a group has a party and collects gifts for the Toy Drive from friends and coworkers. Gifts for infants & teenagers are most needed. As a result, numerous off-duty firefighters, retirees, City workers, students and civilian volunteers visit Fire Stations, and Christmas Parties, sometimes with Santa and Sparky collecting bundles of donations.

All 81 Fire Stations welcome new, unwrapped sporting goods, arts, crafts, toddler clothing and toys up until December 24,

2004. Firefighters accept gifts for children of all ages, from infants to teens in their seventeenth year.

It is sad to report that each year attracts an escalating demand for gifts. Fortunately, we are able to keep pace with an increasing number of donations. Our main recipients are emergency shelters, hospitals and various children's organizations.

If you require further information on the Sport and Toy Drive initiatives or how to donate toys you can contact Doug Sargent (Retired District Chief) at Tel: (416) 395-1076 or visit their website: <http://www.apparatus-floor.com/operationxmastree/toydrive.html>.

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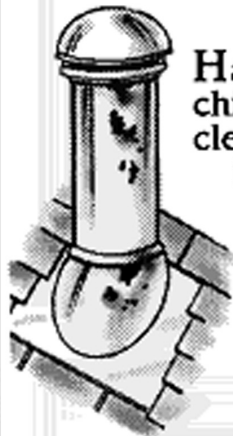
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of corrosion or
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cleaned and
inspected at
least once a year.



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School of Mechanical & Fire Protection
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Education That Works

Residential Sprinkler Systems When will Canada Step Up?

This article was provided by Janet Carroll, Technical Consultant in the Life Safety Services Group, Leber/Rubes Inc.

On the whole, Canadians provide significant input into all aspects of the fire protection industry, including research and development, codes and standards, system design, innovative technology and forward thinking. Just looking at the individuals and companies making up the CFSA membership proves this to me, and without singling out any one person or group, we have members from the most prominent manufacturers, consulting companies, design and contracting companies, municipalities, provincial and federal regulating bodies, testing authorities, those who participate in the codes and standards writing process; the list could go on and on.

We will (hopefully) be the first in North America to adopt objective based codes unilaterally across the country, including the *National Fire Code*, *National Building Code*, *National Plumbing Code* and the provincial derivatives of these codes in 2006.

Yet, with all of this collaborative wisdom and insight, Canada continues to have (what I consider to be) a significant number of fire deaths each year. From 1986 to 2000, Canada has experienced 6,408 deaths from fire, with Ontario having the highest percentage of fires out of all of the provinces (33.8%).¹ In 2000, 39.5% of all fires in Canada were in residential occupancies, yet this is where 74.3% of all fire deaths occurred.¹ This doesn't even factor in the number of reported injuries that are suffered each year and the significant monetary loss that accompanies loss of property and life. Realistically, this shouldn't be anything new to you; we all know (or should know) that most fire deaths occur in the home, yet why do we



take such a passive view when it comes to protecting our homes from fire?

Don't get me wrong, we as an industry and as a community have significantly reduced the number of fire deaths each year within the last 15 years (from over 550 deaths in 1986 to less than 400 deaths in 2000)¹, mainly due to the efforts of fire prevention techniques and early notification devices. Local municipalities, provincial Fire Marshals and educational bodies (using such programs as Learn Not To Burn® through NFPA) provide invaluable information to

the general public in regards to fire prevention and the requirement for home escape plans.

Unfortunately, fire prevention and even advances in construction materials will only take us so far in reducing the number of lives lost by fire each year. In my perspective, we should not be looking to simply reduce the number of fire deaths each year but rather eliminate fire deaths all together. A rather large and onerous step to take, but one that the industry should be striving for.

We know as an industry that automatic sprinkler systems not only save lives but also reduce the number of injuries from fire and significantly reduce the associated costs of fire. We would never contemplate, nor would industry permit us to, build a high-rise office building, a place where occupants spend only 1/3 of their day (8 hours), without providing an automatic sprinkler system to protect it. On the other hand, a high-rise condominium or apartment building, a place where occupants spend up to 2/3 of their day (16 hours), approximately 5 to 10 hours of that in their most vulnerable state – sleeping, can be constructed under the current building code requirements without being fully sprinklered. In 2000, 44.1% of residential fires occurred in one and two family residences and 15.7% occurred in apartments, tenements or flats.¹

Currently, the majority of home builders (with a few exceptions) make it difficult for those educated home buyers to install or purchase the installation of residential sprinkler systems in one and two family residences. We could probably look around Ontario and

count on our hands (and maybe toes) the number of residential sprinkler systems in one and two family residences.

It is obvious to me that simply providing information to the general public on residential sprinkler systems is not enough. A more proactive approach must be taken in order for zero fire deaths to become a more realistic goal. Personally, if I could, I would embrace mandatory sprinkler installation in all residential occupancies (refer to the article *Bill 141 – An Act to amend the Building Code Act, 1992* respecting home fire sprinklers, which received its first reading on November 2, 2004). Yet there are interim steps that could be taken as well, such as:

- Requiring homebuilders to provide residential sprinkler systems as an option for all homes (such as upgrading your tiles or countertop), installed at a reasonable price and providing general information regarding the advantages of residential sprinkler systems.
- Setting up a fund to provide rebates to those homeowner who wish to install a residential sprinkler system in their home.

• Tax incentive to those homeowners who have installed residential sprinkler systems.

The reality is that sprinklers will reduce fire deaths, they will reduce the number of injuries from fire, they will reduce the associated costs (good for the insurance industry), which would ultimately benefit fire departments, by providing an increased level of life safety and a reduction in their time on site, etc. This has been proven in municipalities where residential sprinklers have been mandated; in Canada, the only such municipality is the City of Vancouver in British Columbia.

It is rare to read an article from me that is heartfelt and biased regarding a technical subject, but I'm not sure there is any other way to approach it; after all aren't we talking about the lives of people all around us?

What are we waiting for?

¹ Analysis of Fire Statistics in Canada 1986-2000, Research Report No. 172, published October 26, 2004 by Abderrazzaq Bounagui, Noureddine Benichou and Ederne Victor in the Institute for Research in Construction, National Research Council Canada.

Firepoint Technologies Incorporated

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The Night Before Christmas

*T'was
the night
before Christmas,
when all through the
house * not a creature
was stirring, not even a mouse.
* When down through the chimney,
all covered with soot * Came the
"Spirit of Fire." An ugly galoot.
* His eyes glowed like embers. * His
features were stern. * As he looked all
around him for something to burn * What he
saw made him grumble – his anger grew
higher * Fore there wasn't a thing that would
start a good fire. * No door had been blocked by
the big Christmas tree. * It stood in the corner,
leaving passageways free. * The lights that glowed
brightly for Betty and Tim. * Had been hung with
precautions, so none touched a limb. * All wiring was
new, not a break could be seen * and wet sand at its
base kept the tree nice and green. * The tree had been
trimmed by a mother insistent. * That the ornaments used
should be fire resistant * the mothers had known the things
to avoid * like cotton and paper celluloid. * Rock wool, metal
icicles and trinkets of glass. * Gave life to the tree –
it really had class. * And, would you believe it, right next
to the tree * was a suitable box for holding debris - * A
place to hold wrappings of paper and string. * From all of
the gifts that Santa might bring. * The ugly galoot was so mad
he could burst * as he climbed up the chimney in utter disgust!
* For the folks in this home had paid close
* attention * to all
of the rules
Of GOOD FIRE
PREVENTION*

Happy Holidays!!!



Editor: Janet O'Carroll

The CFSA Newsletter is published 4 times per year – June, September, December, March

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(per issue, GST extra)

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1/2 page	\$100
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Issue #1 – May 20	Issue #3 – Nov. 19
Issue #2 – Aug. 19	Issue #4 – Feb. 17

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Your comments, suggestions and articles are welcome. Please send them to the attention of:

The Editor
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Interested in forming a new chapter?
Call CFSA at (416) 492-9417.



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Please use the Member's Forum to submit your thoughts and comments on CFSA Programs and events or to let us know what you would like to see as future dinner or technical session topics. Please use the form below to update the CFSA office of any change in address or member information. Don't forget to let us know your e-mail address and website URL (if applicable). We look forward to hearing from you. **Send your comments and suggestions to: 2175 Sheppard Ave. East, Suite 310, Toronto, ON M2J 1W8 or fax to: (416) 491-1670 or by e-mail: www.cfsa@taylorenterprises.com Website: www.canadianfiresafety.com**

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