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Summer 2003

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*Fire Safety is
Everybody's Business*

President's Message



I would like to thank all of you for re-electing me for a second term as CFSA President for 2003-2004. I look forward to serving you with the newly elected

Board of Directors over the next year. Their continued commitment is ever so appreciated. I would also like to welcome Cliff Harvey to your board of directors. Cliff is an architect with the Ontario Ministry of Health and Long Term Care and will bring his experience in both the health care and architectural fields to the CFSA board.

Our recent April 23, 2003 annual educational forum was quite successful. Forum Chair Rick Florio and Jon Winton did an excellent job of arranging exciting speakers for a well rounded day. A special thanks is extended to Stu Evans, co-ordinator of Seneca College's Fire Protection Engineering Technology program for his assistance throughout the day. Leo Greollette also did a great job as Facilitator. CFSA also congratulates Thom Evered of the Ajax Fire Department and Bruce Scott of the Ontario Fire Marshal's office whose names were drawn in the business card

draw for NFPA publications. We thank Sean Tracey and NFPA International for providing these prizes.

Over the next few months, the CFSA Board will be meeting to co-ordinate the Fall program which begins in September. This fall we will return to the evening dinner meeting format. Please contact the board if there is a specific topic of interest that you would like presented. We will also continue our regular morning technical sessions. With both the performance based code format and pending technical changes to both provincial and national building codes, you can be sure that interesting trends in Codes will be highlighted and intent statements clarified.

This summer the CFSA will also be reviewing options for partnerships with other fire safety oriented associations and organizations. In the meantime, don't forget campfire and barbeque fire safety as you enjoy the upcoming summer months.

We look forward to seeing you in September.

David Johnson C.E.T.
President



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Former Toronto Fire Chief's Retirement Gala




It was an evening that all of us in attendance will remember for years to come.

The well orchestrated evening included a pipe band, singers from the Salvation Army, numerous wishes of farewell previously taped on video, and speeches from such notable guests as the Honorable Alexander Lincoln, Mel Lastman and Dr. James Young, to name a few.

Dave Johnson, President of the CFSA presented Al with a cedar Adirondack chair as a small token of our appreciation for his commitment and dedication as a member, director and even past president of the CFSA.

We hope that this chair will be well used over the coming summer months at the cottage as Al begins his well-deserved retirement.



Welcome to the following New Individual Members

Richard Boksa
Udhaya Kumar Govindan
Barry Kendall
Stephen Mathew



Editor: Janet O'Carroll

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

Advertising Rates
(per issue, GST extra)

Back cover	\$250
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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

All general enquiries and advertising materials should be directed to the CFSA office at 2175 Sheppard Ave. E., Suite 310, Toronto, Ontario M2J 1W8

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

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CFSA Chapters

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

Have a Safe Grilling Season

The National Fire Protection Association offers the following tips for a safe grilling season



Because gas and charcoal grills cause an average of 1,500 structure fires and 4,800 outdoor fires in or on home properties, the NFPA (National Fire Protection Association) offers these sensible outdoor grilling tips to help you keep your cookout safe and fun.

Getting ready...

- Position the grill well away from siding, deck railings and out from under eaves and overhanging branches.
- Place the grill a safe distance from lawn games, play areas and foot traffic.
- Declare the entire grill area a "kid-free zone" until the grill has completely cooled off.
- Put out several long-handled grilling tools to give the chef plenty of clearance from heat and flames when flipping burgers.
- If you have a charcoal grill, purchase the proper starter fluid and store the can out of reach of children, and away from heat sources.
- If you have a propane grill, check the propane cylinder hose for leaks before using it. A light soap and water solution applied to the hose will quickly reveal escaping propane by

releasing bubbles. Have leaking fuel lines repaired before using.

- All propane cylinders manufactured after April 2002 must have overfill protection devices (OPD). OPDs shut off the flow of propane before capacity is reached, limiting the potential for release of propane gas if the cylinder heats up. OPDs are easily identified by their triangular-shaped hand wheel.

You go grill!

- If you are using fluid to start a charcoal grill, use only fluid intended for this purpose. It is extremely dangerous to substitute any other combustible liquid to start the coals. This is especially true for gasoline, which can be ignited explosively by even a tiny spark.
- Apply starter fluid directly to the coals, then reseal and put away the can. Light the coals carefully, avoiding the flame flare-up. Store the can out of reach of children and away from heat sources.
- When you've finished cooking, keep an eye on the grill until it has completely cooled. Charcoal can be soaked with water to speed the cooling process, but use extreme caution to avoid the steam and splatters, which can cause burns.

A final word about cookouts:

Propane and charcoal BBQ grills must only be used outdoors. If used indoors, or in any enclosed spaces, such as tents, they pose both a fire hazard and the risk of exposing occupants to toxic gases and potential asphyxiation.

Long Life Smoke Alarms

On April 9, 2003 the Office of the Fire Marshal (OFM) released the following Communiqué on Long-Life Smoke Alarms.

The OFM has been addressing concerns regarding smoke alarms containing a particular brand of long-life lithium batteries. There have been numerous reports of these batteries, which ostensibly last "up to ten years", failing in as little as a few months.

Representatives from the OFM have spoken and met with Underwriters Laboratories of Canada (ULC), Ultralife (the battery manufacturer) and the manufacturers of the smoke alarms.

The smoke alarms contain a removable, lithium 9-vol battery. The battery is warranted for up to ten years and will be replaced by the battery manufacturer if it fails before that time. Please note that long life alarms containing sealed power units have not been identified as being of concern.

OFM representatives have been told that the issues pertain to the battery and not to the smoke alarm unit itself. ULC and the smoke alarm manufacturers have assured the OFM that the lithium battery can be replaced with another recommended battery chosen from the list of acceptable replacement batteries located either inside the unit or in the manufacturer's information manual supplied with the smoke alarm. The smoke alarm will then require annual battery replacement.

For more information on this subject and/or to review the complete Communiqué on long life smoke alarms visit www.ofm.ca.

The Sheppard Subway System: What's New and Different?

This article was graciously provided by Jessica Patchett, a student attending Seneca College of Applied Arts and Technology, Fire Protection Engineering Technology course.

The recently opened subway line that starts at Sheppard and Don Mills isn't just new; it is also very different. The new line, which consists of 5 stations; Don Mills, Leslie, Bessarion, Bayview and Yonge, boasts many improved safety features.

One such safety feature is the ventilation system, which consists of four fans at each end of each station. The fans are 250 hp single speed fans designed to handle complete burnout. They are fed from TTC substations with dual redundant controls, which are fed from Hydro power so reliance on Hydro is a main concern. If the Transit control station is down, there is a facility at each station to back it up and if the main PLC shuts down, a bypass takes over.

Tests are conducted weekly on each fan and simultaneous tests on all four fans are conducted quarterly. Two dampers direct air from the tunnel or doors, and depending on where the fire is, the air is controlled differently, i.e. always away from the passengers. For example, if the train were caught between two stations, the passengers would be led to safely in one direction, and the fans would direct the air other way in order to clear smoke. Such a simulation was conducted prior to opening the subway to the public, in which there were 200 people on the train who were evacuated in three minutes, forty seconds. In similar exercises conducted in the older stations, the evacuation time was thirteen min-



utes, 75% longer than in the new stations.

The panel controlling the ventilation system displays various scenarios in order to alert TTC staff and firefighters to the situation and to which ventilation systems are to be activated. The panel is also alarmed against vandals.

Another notable safety feature is the inclusion of an elevated walkway for passenger evacuation. The tunnels in the older stations are 16 feet in diameter compared to those in the Sheppard Subway, which are 17 feet in diameter. This extra space provides for the walkway, as well for the ability to evacuate passengers from the side doors as opposed to single file from the end doors. Handicapped or injured passengers are still evacuated from the end door of the train, and an "Evac cart" is currently be-

ing developed for these passengers, which will run on the tracks. The wider tunnel also allows for standpipes throughout the system. Valves on the standpipe are 250 feet apart so that firefighters have access to adequate water.

The safety certification on the Sheppard Subway system was conducted by

Brian McDonnell and consisted of a preliminary hazard analysis of traction power, signals, emergency ventilation, handheld radios etc. This 'Fault Tree Analysis' lists each situation by severity. Faults were examined and corrected before the subway could begin operation.

Each station on the Sheppard Subway line has a Notifier Alarm System with a manual control for firefighters or maintenance staff. The fire alarm system is addressable with ionization heat detectors in the stations.

With the implementation of all these features, the TTC has raised the bar for safety standards in subway systems; future projects now include upgrading the ventilation systems in the older parts of the subway system, beginning with York Mills.

Fire Safety Initiatives

CFSA 2003 Annual Education Forum

During the last year, the fire protection industry witnessed one of the deadliest fires in nightclubs and other social assemblies in US history, the Rhode Island fire, which accounted for a devastatingly high number of lost lives.

In this day and age, when so many resources are available to prevent fires, from emergency planning to installation of sprinkler systems, events like the Rhode Island fire should not occur. New initiatives in the fire safety industry play a key role in preventing tragedies such as the Rhode Island fire from occurring in the future.

This year's Annual Education forum was dedicated to fire safety initiatives. Topics presented to the attendees included Bill 124 forum, ULC Standards update, Kemano smoke alarm study, recent smoke management research at NRC, preventing juvenile firesetting in Ontario and emerging fire code and building code initiatives. An overview of the presentations can be found throughout this newsletter.

We would like to thank all the speakers who participated in this year's Annual Education Forum for their exceptionally knowledgeable and educational presentations, as well as for their time and dedication.

We would also like to thank everyone who attended and hope this year's forum was well received. If there are any comments or suggestions regarding the 2003 Annual Education Forum, please submit them to cfsa@taylorenterprises.com.

Emerging Fire Code and Building Code Initiatives

Both Krystyna Paterson of the Office of the Fire Marshal and Alek Antoniuk from the Ministry of Municipal Affairs and Housing presented and discussed the current Ontario Fire Code (OFC) and Ontario Building Code (OBC) initiatives, including the objective based codes consultation and the proposed technical changes.

The consultation on objective based code and proposed code changes started on February 12, 2003 and ended May 12, 2003. In Ontario, the Ministry of Municipal Affairs and Housing (MMAH) worked in conjunction with the Ministry of Public Safety and Security (MPSS) to lead the consultation of both codes. Simultaneously, consultations were occurring nationally for the National Fire, Building and Plumbing codes.

Objective based codes are a combination of prescriptive and performance based requirements. There are numerous benefits to objective based codes versus conventional codes, such as:

- a more consistent application
- the existing requirements are retained, minimizing user disruption,
- providing more information to evaluate equivalents,
- easier to apply to existing buildings, and
- compatible with the direction of international codes.

The idea is to include objectives and functional statements in each code, un-

like the conventional codes, as well as acceptable and alternative solutions. Objectives will be broken down into levels, which generally describing the intent of each requirement. Functional statements will be qualitative and will describe the conditions to be achieved in more detail than the objectives do. Alternative solutions documentation will be required to be provided for review by the Chief Fire/Building Official.

Currently there are over 730 proposed changes to the 1997 OBC and over 200 changes to the 1995 OFC. All comments submitted during the consultation period will be reviewed by code committees, who will report their findings to the government.

Some of the proposed changes to the OFC and the OBC are:

OFC

- smoke alarms required on every level of homes,
- outdoor amusement activities,
- exposure protection of fire escapes,
- NFPA 10 and 25 as options for maintenance of respective systems and
- testing of interconnected smoke alarms.

OBC

- new beam, lintel, stud, and concrete slab solutions,
- Group B, Division 3 occupancies and
- barrier free.

The expected publication date of the new objective based fire and building code is 2005.

Building Regulatory Reform (Bill 124)

Panel Discussion

The following guest speakers participated in a panel discussion on Bill 124, Building Regulatory Reform:

- Ali Arlani, Ministry of Municipal Affairs and Housing (MMAH)
- John Devries, Chief Building Official for the Town of Richmond Hill
- Nancy Smith, Ontario Association of Architects
- Peter Matson, Proform Insurance

Ali Arlani discussed the current status of Bill 124. The last meeting held by the Minister of Municipal Affairs and Housing was on March 24, 2003, with the objective of seeking further input on measures to address the financial accountability of building practitioners, so that regulations can be finalized.

Ali also noted that the piloted exam testing was conducted. The testing consisted of 35 sessions in 23 municipalities, testing over 600 individuals. Testing was based on the Ontario Building Code (OBC) and guidelines, and consisted of multiple-choice questions. The pilot exams were conducted to ensure that questions were both clear and fair. In total, 81% of individuals tested felt that the overall testing was good or very good and 68% felt that the questions were clear.

John Devries discussed issues and concerns regarding Bill 124 from a municipal perspective. He noted that there will be less flexibility in the system and additional administration costs, and that total costs are expected to rise. Municipal building officials are also concerned about the implementation of the objective-based building code, which is expected to come into effect immedi-



ately after Bill 124. The officials would prefer a 36-month implementation period for Bill 124, rather than 18 to 24 months.

John also discussed the fact that even though this process will increase professionalism in the industry, it may also create a shortage of qualified officials. It is expected that 7% to 10% of building officials will retire by 2005, and 35% to 40% will retire by 2010.

Nancy Smith spoke from the perspective of the Ontario Association of Architects (OAA). The OAA generally supports the initiative, and the objectives of BRAGG. Currently, OAA and the Professional Engineers of Ontario (PEO) are exempt from the testing requirements set out by Bill 124, provided that each organization puts

objectives into place to satisfy the requirements. The OAA participated in developing the content for testing. They initiated a series of Building Code seminars on various components of the code, and are in the process of developing specific training for the testing of code exams.

OAA is one of the few associations that require their members to carry liability insurance. However, there are concerns about the cost and availability of insurance as required by Bill 124 and that premiums may be onerous for smaller sized firms and companies.

Peter Mason discussed the insurance requirements as set out by BRAGG from an insurance industry perspective. He noted that the events of September 11, 2001 exacerbated an already weak industry. They are very few insurers who offer Professional Liability coverage for design professionals (i.e. DPIC, ECON, etc.). Current insurance coverage provided to design professionals includes practice policy, which covers claims for alleged negligence resulting from professional services discovered and reported during the policy terms, and project policies, which provide coverage for specific projects. The insurance industry is not receptive to offering broader terms such as a 7 year discovery following project completion.

The overview from each panelist was an excellent perspective of how Bill 124 (BRAGG) is going to affect and change the different disciplines and fields within the industry.

ULC Standards Update

This article was graciously provided by Jason Scovell, a Plans Examiner for the Toronto Fire Services

At this year's CFSA Annual Education Forum, Mr. Dave Goodyear of the Office of the Fire Marshal presented an overview of a number of new and revised standards published by Underwriters' Laboratories of Canada, including those dedicated to smoke alarms, visual signalling devices and new standards for central station monitoring systems.

It was noted that a "balanced" Committee develops the content of any ULC Standard, with representation from among all the major interested parties in the particular subject area. The Standards Council of Canada governs the Committee and the process. Consensus is needed among the committee participants to pass amendments, and changes are constantly occurring to standards as technology evolves over time.

There are two different types of standards. Hardware standards address how a product, such as smoke alarms, is manufactured and tested. Performance standards such as the Standard for the Installation of Fire Alarm Systems, address how systems are to be installed and inspected.

The national standard for Smoke Alarms is CAN/ULC-S531. In 1993, an amendment was made to include a "battery removed" warning flag so that a user would know that the device does not contain a battery. The latest edition, dated 2001, contains a requirement that an expiry date be readily visible on the smoke alarm after installation, with wording indicating that the device shall be replaced after a certain specified date. Also pause button is permitted to silence the device in the event of an accidental activation, and this must be factory tested.

Future editions may address such issues as long life battery units and 10-year batteries, audibility levels of

smoke alarms, wall mounting, and the temporal pattern signal.

The national standard for the Installation of Smoke Alarms is CAN/ULC-S553 and this document establishes the installation parameters for the devices. An example of such a parameter is that, in basements, smoke alarms are to be mounted near the stairs. Another example is that smoke alarms are not to be installed in garages. There is also a new appendix with detailed information about smoke alarms.

The national standard for the Maintenance and Testing of Smoke Alarms is CAN/ULC-S552 and it applies to dwelling units and addresses the annual testing, replacement and additional tests of the typical smoke alarm in single family dwellings.

The national standard for Smoke Detectors is CAN/ULC-S529. These devices are different from smoke alarms because they are a component of an established fire alarm system. The new edition of the standard contains more precise phrases, and allows for the use of a green laser beam measurement device. The diagram for the fire test room has been shown and modified and fire test profiles have been added.

The standard for Visible Signal Devices for Fire Alarm Systems is ULC-S526. In the latest edition new light intensity levels have been established, the glossary has been updated, requirements for transparent covers have been added and notations have been

added indicating that colourless lenses are preferred over red lenses.

The national standard for the Inspection and Testing of Fire Alarm Systems, CAN/ULC-S536, was amended in 2001. In the revised edition, the 536 standard was linked to the national standard for the Verification of Fire Alarm Systems, CAN/ULC-S537, on the issues of modifications, changes or alterations to fire alarm systems. In these situations, the 537 standard should prevail.

Further work is being done on new standards that are currently under development for central monitoring stations. In particular, the performance standard, ULC-S561, Standard for the Installation and Services for Signal Receiving Centres and Systems, and the equipment standard, ULC-S559, Central Station and Proprietary Fire Protective Signalling Systems and Equipment, are under development and may be released in the near future.

Also, new work projects may lead to the analysis and development of a generic ULC-listed smoke sensitivity tester. There is a ULC smoke sensitivity device, but it may not be measuring within the same sensitivity range as devices used by other manufacturers.

In short, much work has been done and much work is still underway at the ULC Standards department as the consensus-based balanced Committees try to keep pace with the issues, and technology that advances each new day.



CFSA Scholarships

Each year, the CFSA awards scholarships to graduating students from fire protection programs within Canada and this year is no exception. The following six Fire Protection Engineering Technology and Technician graduates from Seneca College of Applied Arts and Technology and Lambton College were given awards:

Seneca College

Geoff Bretzier
Rocky Mino
Case Statema

Lambton College

Phillip Bott
David Polinsky
Robert McIntyre

In addition to our Annual Scholarship Awards, in 1993 the CFSA established an award reflecting the many contributions to fire safety by the late Peter Stainsby. Peter was an active and devoted member, a dedicated director and an outstanding individual. Each year we appropriately recognize one top fire protection student; this year's winner is Pascal Tremblay of Seneca College.

Look for our exciting new scholarship, which will be presented next year to one student excelling in such courses as the Fire Code, Building Code, etc. More information on this new scholarship will be available in September.

Thank you to the following for their Scholarship donations

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A special thanks to **Jon Winton** and **Rick Florio** of the CFSA Education Forum and Tradeshow Committee for bringing us yet another successful seminar.

Recent Smoke Management Research At NRC

The topic of recent smoke management research at NRC was presented by Dr. Gary Lougheed of the Fire Risk Management Program, Institute for Research in Construction, National Research Council (NRC).

Dr. Lougheed briefly discussed the new facility expansion at the NRC testing laboratories including a 10-storey atrium, high burn hall and tunnel.

The objective of smoke management is to limit or reduce smoke production via the use of sprinklers and material combustibility, and to modify its movement, thereby mitigating the effect on building occupants.

The following are some projects that NRC has been working on.

Design Approach for Atrium Exhaust Effectiveness

NRC has been conducting testing on the effectiveness of atrium exhaust based on the criteria as required by NFPA 92B "Guide for Smoke Management Systems in Malls, Atria and Large Areas" and ASHREA including:

- Design equation to determine maximum flow rate through exhaust inlet for efficient system exhaust.
- Primary dependence on smoke depth
- Secondary dependence on smoke temperature.
- Improved efficiency for thin smoke layers by using multiple outlets.

Cable Fires in Plenums

In order to study cable fires in plenums, NRC developed data for hazard assessment including cone calorimeter tests (completing testing on 10 new and 15 used cables), room scale fire tests (completing 12 tests with 3 cables) and full-scale fire tests simulating an office scenario (completing 15 test in total). NRC also completed testing on



FTIR gas analysis and tenability analysis.

Full-scale fire tests scenarios included installing cables in a plenum in a corridor, above the fire compartment and a combination of above the fire compartment and in the corridor. NRC found that there was an increase in smoke production, which effected visibility, an increase in the production of carbon monoxide (CO) which effected lethality and the production of irritant gases, which had a limited effect on lethality or incapacitation but effected the ability of the occupant to evacuate.

Effectiveness of Smoke Duct Detectors

Dr. Lougheed discussed the six duct smoke detectors issues:

1. comparative driving forces
2. dilution

3. effects of smoke aging on detector performance
4. effects of HVAC filters on detector performance
5. smoke stratification in ducts
6. efficiency of sampling tubes and the effects of airflow velocity.

NRC conducted smoke duct detector testing in their new 10-storey facility with a fully operation HVAC system including gas fired heaters and filters.

Also discussed were the topics of shielded sprinklered office fires, buoyant smoke flow in atrium smoke management, and balcony spill plumes. The results from each of the studies and testing conducted by NRC will assist in producing new design criteria and engineering guidance, and standards and code.

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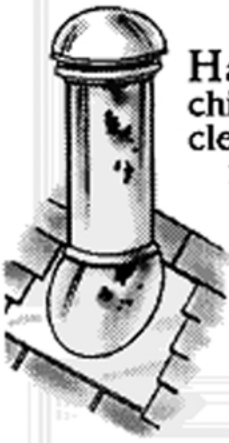
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Education That Works

Preventing Juvenile Fire Setting in Ontario

Joanna Henderson, Ph.D., a staff psychologist for the Centre for Addiction and Mental Health (CAMH) presented the topic of juvenile fire setting in Ontario and the intervention program developed to prevent such behaviour, known as TAPP-C.

The risk of residential fire injury is determined using such factors as age, physical condition, socio-economic status and fire related knowledge, attitude and behaviours. For example, based upon fire statistics we know that those most at risk in age are the elderly and children. However poor knowledge, negative attitudes and dangerous behaviours are core deficits that underlie fire risk.

High risk homes can be identified by violations of the fire/building codes, the absence of smoke alarms, any previous fires, and the presence of person(s) who play with fire, lighters or matches. This early identification can provide a

key opportunity to prevent fires from occurring.

The TAPP-C mandate is to develop and disseminate an assessment and intervention program for juvenile fire-setters in Ontario. Such a program involves the participation of the Office of the Fire Marshal, CAMH, Fire Marshal's Public Fire Safety Council and the Toronto Fire Services. TAPP-C's basic principals of intervention are:

- Fire related knowledge, attitudes and behaviours are learned.
- Learning takes place through direct teaching, observing models and experience.

- The family home is an important context for fire-related learning.
- In high-risk homes, many factors can interfere with learning and changing attitudes and behaviours.

The main goals of TAPP-C are to evaluate fire related knowledge, behaviour and attitudes, and to work with families to improve these areas in order to reduce the risk of fires and to address the clinical issues that interfere with change.

The Centre for Addiction and Mental Health will intervene in order to:

- Develop positive attitudes about fire safety.
- Develop fire safe routines.
- Establish rules about ignition materials.
- Improve supervision of children.
- Improve behaviour management of children.
- Improve child impulse control and problem solving skills.

The Fire Service will intervene in order to improve family fire-related knowledge, attitudes and behaviour through home fire safety checks, including inspection and installation of smoke alarms, and fire safety education.

A study was conducted by the CAMH to document the adoption and use of TAPP-C across Ontario and to examine key factors in understanding why and by whom TAPP-C has been adopted and used. The study took into account surveys completed by 210 mental health professionals and 241 fire service professionals who attended a TAPP-C education event. In total, 82% of mental health professionals and 93% of fire service professionals have adopted TAPP-C, using the program with over 5000 children.

schedule of events

CFSA Dinner Meetings & Technical Sessions

TECHNICAL SESSIONS

October 1
November 5
December 10

All presentation topics are yet to be announced.

DINNER MEETINGS

September 24
October 22
November 19

Other Events for 2003

September 6-9, 2003

Thermal Insulation Association of Canada,
2003 Annual Conference
Casino Nova Scotia Hotel
Halifax Nova Scotia

September 21-25, 2003

Canadian Association of Fire Chiefs -
Annual Conference
Delta Meadowvale Resort and Conference
Centre
Mississauga, ON

September 21-25, 2003

Ontario Building Officials Association -
47th Annual Meeting and Training
Sessions
Blue Mountain Resort

Kemano Smoke Alarm Study

Tony Crimi, of A.C. Consulting Services presented the Kemano Smoke Alarm Study (from the Kemano Fire Studies – Part 1 research report) topic.

Working with the Underwriters' Laboratories of Canada, NRC conducted a series of full-scale fire detection experiments in Kemano, a deserted town in northern British Columbia. This study has produced experimental data that can be used to analyze the impacts of type, number and location of smoke-alarms on fire detection time, to improve relevant codes/standards, and ultimately to make better use of current smoke-alarm technology to safeguard Canadians and their homes against fires.

In total, 13 tests were conducted in both a single storey home and a two-storey home, involving the living room, kitchen and bedrooms. Photoelectric, ionization and dual smoke alarms powered by batteries were installed throughout the homes. Carbon monoxide detectors were also installed to continuously monitor and display the level of carbon monoxide (CO).

Some of the variables studied were as follows:

- Fuel types,
- Optimal number of detectors,
- Type of combustion (smoldering versus flaming),
- Detector location relative to fire source,
- Detector location (ceiling versus walls),
- Detector types.

The experiments conducted were generally small, slow smoldering or flaming fires using materials such as wood (pine), polyurethane foam, an upholstered chair, newspaper, cotton

flannel fabric, cooking oil, etc. The National Research Council (NRC) also conducted large flaming fires in sprinklered homes (Kemano Fire Studies – Part 2).

Some of the experimental data obtained during the testing included:

- Optical density of smoke in the egress path,
- Optical density of smoke in the vicinity of detectors,
- Temperature in the fire room and egress routes,
- Carbon monoxide (CO) concentrations,
- Detector response times.

The effects of dead air space were also investigated using smoke alarms mounted on the ceiling, using predetermined distances from the wall and vice versa. NRC found consistent results smoke alarms mounted at the top of walls and mixed results smoke alarms mounted for lower on walls.

Some results obtained from this testing include:

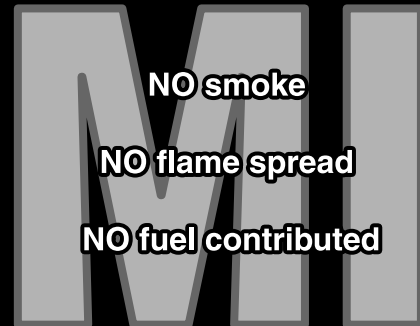
- The operation of both photoelectric and ionization smoke alarms at low optical design densities.
- That "dead air space" is less prevalent than believed.
- The effect of closed intervening doors.
- That all smoke alarms responded well to flaming fires.

The complete research report can be viewed on-line at <http://www.nrc.ca/irc/fulltext/rr108/>.

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Dinner Meeting reservations, technical sessions, and much more.

Fire Safe Cigarettes

“Fire Safe Cigarettes” has been a topic of great debate over the last six months, not only here in Canada but in the United States as well.

What are “Fire safe cigarettes”?

They are cigarettes manufactured to burn at lower temperatures or extinguish within minutes if not inhaled.

Why manufacture such cigarettes?

In an internal report “Fatal Scenarios in Canadian Homes” prepared in 2001 by D. Yung and G.D. Loughheed of the Fire Risk Management Program, Institute for Research in Construction, National Research Council, it was found that in Ontario residential homes between 1995 and 1997, smokers’ materials, lighters and matches were the cause of 9.5% of all fires and 40.8% of fatalities, in comparison to cooking equipment fires which accounted for 26.5% of all fires and only 12.4% of fatalities. Therefore smoking materials account for a disproportionately high number of fatalities in comparison to fires ignited by other sources.

Also, from an analysis of Canadian fire statistics for the years 1995 to 1999, the Canadian Association of Fire Chiefs (CAFC) reported that at least 14,030 fires were started by smokers’ materials. These fires killed 356 people, injured 1,615 people and cost more than \$200 million in property damage.

What is Health Canada currently doing about it?

In December of 2002, Health Canada released a regulatory proposal for reducing fire risk from cigarettes, consultation document. This document includes a strategy for preventing cigarette fires, comprised of the following activities:

1. Increasing public education on the fire hazards of cigarettes.
2. Reducing smoking prevalence.
3. Setting flammability requirements for mattresses, bedding and upholstered furniture.
4. Promoting the use of smoke detectors.
5. Reducing the ignition propensity of cigarettes.

The first four activities have been ongoing in Canada for many years. Health Canada is now considering the possibility of regulating the ignition propensity of cigarettes sold in Canada.

Health Canada is proposing to adopt a pass/fail rate, such that cigarettes tested must extinguish 75% of the time, as a target for cigarettes sold in Canada.

To obtain more information on the Tobacco Act or the consultation document, visit Health Canada’s website at www.hc-sc.gc.ca.

Farewell & Hello

As we say goodbye to former Fire Chief Al Speed, we welcome the new Fire Chief of Toronto, William A. Stewart.

Chief Stewart is a thirty-one year Fire Service veteran, having served in the former City of North York Fire Department for 26 years prior to the amalgamation of the new City of Toronto on January 1, 1998.

Chief Stewart is a graduate of the Ontario Fire College, Technology Diploma Programs, general and advanced levels, Executive Development Program and the Canadian Emergency Preparedness College.

He also holds professional designations from the Institution of Fire Engineers M.I.Fire.E; Ontario Municipal Management Institute, Certified Municipal Manager CMMIII, and the Canadian Association of Fire Chiefs, Chief Fire Officer, CFO designation.

The CFSA would like to wish Bill the best of luck in his new position as the Fire Chief of Toronto.

New fibre-optic fire detection system investigation

In collaboration with the University of Ottawa, fire researchers at the Institute for Research in Construction (IRC) are currently studying the possibility of a new fibre-optic fire detection system.

The system is expected to reduce false alarms and provide early detection of fire in restricted access areas or difficult ambient conditions, such as aircraft tunnels, underground railways and stations, telecommunications facilities and nuclear and petrochemical plants.

To obtain information, visit www.irc.nrc-cnrc.gc.ca.



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