



# CFSA News

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It has long been recognised that education is the way to fire prevention, but how do we reach and convince the apathetic, those who don't care and those who simply say it will never happen to me.

Public education is addressed by a number of agencies and in a number of different ways. There is Fire Prevention Week and the reports in the media of serious fires. The Office of the Fire Marshal and NFPA have various programs, some of which are in schools. Hopefully the education of the children will be carried to their homes and the children will educate the adults. There is the education in the work place via health and safety meetings, floor warden team meetings and fire drills. There is the Fire Department that takes a fire truck to a street in their area allowing the officers to go door to door speaking to the residents and checking their smoke alarms, and the Fire Prevention Officers who speak at meetings in their community. All of these are excellent ways to educate the public and it takes all of them, yet we know large part of the population is not getting the message, as witnessed by the high number of fires still occurring every year.

Those who attend community meetings, volunteer to be fire wardens and attend seminars in the work place, and the children who can talk to their parents about what they have learned in school, are usually the concerned citizens and are therefore less likely to suffer from a fire in the serious manner that could affect the rest of the population.

The vast majority of the population do not know about the Building and Fire Codes; they simply assume that we build safe buildings (if they even think about it at all). They trust modern sciences to provide standards that will keep them safe. The public are not told that modern furnishings will spread the fire a lot faster than the furnishings of yesteryear but then if they were advised that furnishing could be made of safer materials would they be willing to pay any extra costs, or would they say "It will never happen to me so why pay more?"

With emphasis on health and safety in the work place we have less loss of life in fires at work than in the home.

But then we have many employers that only pay token service to health and safety thus there is little to no education to their employees.

The Provincial Government in Ontario has recently made provisions to increase Ministry of Labour Inspectors by 200. When the additional Inspectors have been hired there will be approximately 400 in the Province. The Ministry of Labour Inspectors have the power to "ticket" on the spot on finding certain offences however "ticketing" is not their main thrust, the main item for Inspectors is intended to be education. The task of the Inspectors is to reduce the number of accidents in the workplace by 60,000 (20% of total accidents) over the next 3 years. The game plan is for the Inspectors to concentrate on 2% of workplaces insured by WSIB. This 2% account for 10% of long-term illnesses and 21% of injury costs.

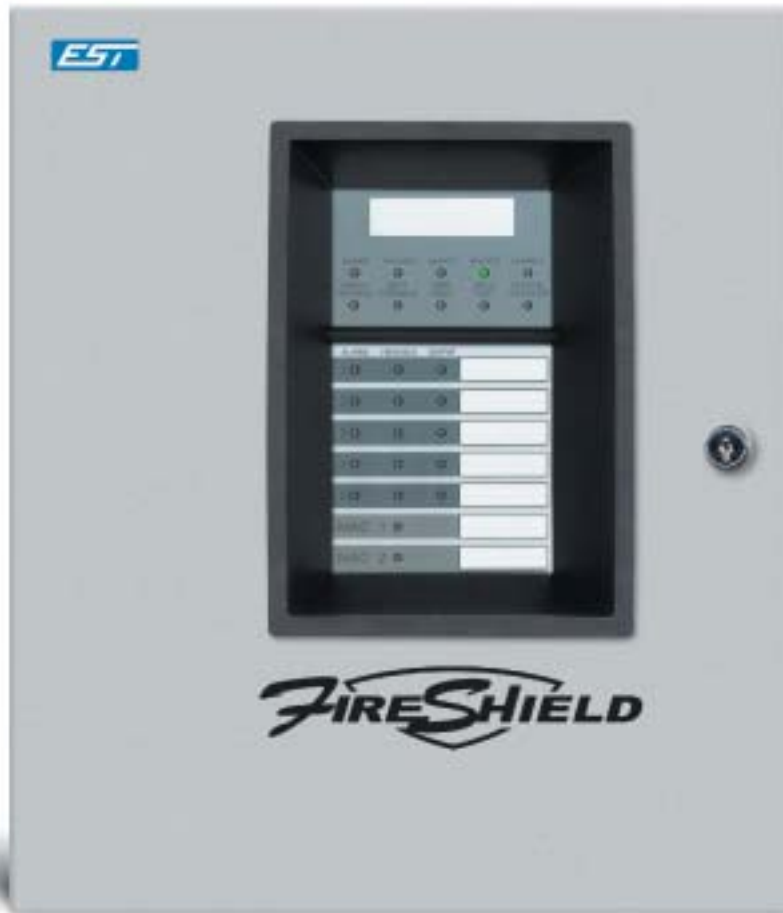
A high number of accidents in a workplace suggest an attitude problem, the type of attitude that would ignore fire prevention and the type of attitude that ignores the education of the workers. Attitudes learned in the workplace will be taken home, bad health and safety attitudes learned at work will cause bad attitudes, including fire safety, in the home. Employers promoting health and safety, including fire safety, will be educating their employees in habits that will help safety in the home.

With the high standard of personnel in the Office of the Fire Marshal and in Municipal Fire Prevention Offices working in conjunction with the Ministry of Labour Inspectors and with agencies such as IAPA teaching in the workplace and CFSA and other such organizations continuing to provide education for their members, we will educate more and more of our citizens every year. Someone once said, "You cannot legislate safety"; they were right. We do have appropriate legislation in place but it does not seem to prevent accidents and fires. Education might be slower than we would like but it will have better results in the long run.

Alan Kennedy  
CFSA President



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**Editor:** Janet O'Carroll

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

**New Advertising Rates**

Membership has its benefits, and advertising is a key advantage to getting your company and product information out to other members in the industry. The CFSA has decided to make advertising in the CFSA Newsletter a definite advantage for members. Pricing has been revised to include the following rates:

	<b>Member Rate</b>	<b>Non-Member Rate</b>
Back Cover	250	500
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1/2 Page	100	200
1/4 Page	50	100
Business Cards	25	50

Prices listed are for each issue and do not include GST. Corporate members receive a 10% discount.

For more information regarding advertising in the CFSA Newsletter, please contact Sherry Denesha at 416.492.9417 or [cfsa@taylorenterprises.com](mailto:cfsa@taylorenterprises.com).

**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:  
The Editor  
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Views of the authors expressed in any articles are not necessarily the views of the Canadian Fire Safety Association. Also, the advertisements are paid advertising and in no way recognized as sponsored by CFSA.

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# Editor's Note

It is that time of year again...time to wrap up the 2004/2005 CFSA year and look forward to the upcoming 2005/2006 year.

This year we are very pleased to have added several new members to the Board of Directors, including Susan Clarke from the Office of the Ontario Fire Marshal (OFM), Cengiz Kahramanoglu from the Ministry of Municipal Affairs and Housing (MAH) and Mike Boyle from the Ontario Municipal Fire Prevention Officers Association (OMFPOA). We also wish a fond farewell to a few board members, including Craig Cunningham from the OMFPOA, Clifford Harvey from the MOHLTC and two long standing directors who have significantly influenced CFSA over the years: Jon Winton from Leber/Rubes Inc. and Doug Crawford from OFM.

Featured in this newsletter are reviews of the presentations from the 2005 Annual Education Forum held at the Toronto Fire Services Fire Academy April 20, 2005, including Residential Sprinklers: Vision & Reality, Trends and Evolution of Joint and Penetration

Firestopping, Industrial Explosion Protection, and Fire Rated Door Hardware Issues. In addition articles regarding Bill 184, "An Act to require the Building and Fire Code to provide for fire detectors, interconnected fire alarms and non-combustible fire escapes", the increasing concern being caused by fire-works, the NFPA members' vote to require residential sprinklers, amendments to Bill 124 and new ULC publications. The feature article this month was graciously provided by the IAPA magazine Accident Prevention, on the Criminalization of Reprisals, which discusses the changes to the Criminal Code of Canada regarding reprisals of employees and the consequences for employers.

The CFSA Newsletter committee looks forward to any comments, article suggestions or submissions or any questions you might have.

Yours truly,

Janet O'Carroll

### Error in the CFSA Spring Newsletter

In the January dinner meeting article on Hi-Fog® Water Mist Sprinkler Systems, the website address should have read [www.hi-fog.com](http://www.hi-fog.com).

We apologize for any inconvenience this may have caused.

### Printing Error at the AGM

The CFSA would like to apologize to Underwriters' Laboratories of Canada (ULC) for a printing error that occurred on the portfolio's used at the 2005 Annual Education Forum.

ULC has been a long time supporter of the CFSA, and we appreciate their understanding in this matter.

Again, we apologize for any inconvenience this error may have caused.

# The Criminalization of Reprisals

This article was originally published in the March/April 2005 edition of Accident Prevention produced by IAPA. The article was written by Ryan J. Colin, an associate practicing in the Occupational Health and Safety Practice Group at Stringer Brisbin Humphrey Management Lawyer.

Following closely on the heels of the dramatic changes brought by Bill C-45's "criminalization" of OHS, Bill C-13 further amends the *Criminal Code* to provide legal protection for "whistleblowers".

While Bill C-13 was primarily meant to crack down on Enron-type corporate fraud, the whistleblower protection section was broadly drafted and will clearly cover OHS and other workplace-related reprisals. The passage of this second "criminal" legislative amendment impacting on workplaces within a year of the first underlines the seriousness with which the federal government now regards the need to protect workers.

## Bill C-13 amendments

### **Bill C-13 makes it an offense to**

- engage in any reprisal action against employees that is intended to either prevent them from contacting authorities about a potential contravention of a law (any federal or provincial law, including any provincial OHS statute and the *Canada Labour Code*), or
- retaliate against them for providing such information.

The new provisions are found in section 425.1 of the *Criminal Code*. Specifically, no employer or person acting on behalf of an employer, or in a position of authority in respect of an employee, shall take a disciplinary measure against, demote, terminate, or otherwise adversely affect the employment of any employee to prevent him or her from providing information to enforcement officials.

The Bill C-13 amendments came into force on September 15, 2004 and apply to all organizations across Canada. Section 425.1, the

provision that expressly prohibits reprisals against whistleblowers applies to all employees.

Employers should appreciate that they are potentially liable even where an issue that comes to the knowledge of the employee and is reported would not on its own have amounted to a criminal offense. Furthermore, even if the employee were only considering bringing the issue to the regulator's attention, the employer would still be liable for any reprisals.



### **Enforcement through prosecution**

Whistleblower protection, or at least "reprisal" protection (a.k.a. "discriminatory action"), is nothing new. Every Canadian OHS statute prohibits reprisals against employees for exercising their rights under OHS legislation. Many other provincial and federal "regulatory" statutes contain similar provisions (i.e. environmental, human rights, employment standards and competition legislation).

Employers defending a reprisal complaint are often subject to a "reverse onus," meaning that they must positively establish through evidence that they did not engage in any alleged reprisal.

But, while the new *Criminal Code* whistleblower provisions do not impose new obligations on employers and those acting on their behalf in OHS matters, they do represent a very different enforcement approach. Employers found to have contravened the reprisal provisions of Canadian OHS statutes are not typically prosecuted. Most statutes allow for the hearing of such complaints through an administrative tribunal or the grievance arbitration process. Thus, prosecutions are rare.

Under the amended *Criminal Code* the employer (or any one acting on its behalf) will be subject to arrest and prosecution. Although most OHS statutes place a reverse onus on the employer to show that it did not engage in a reprisal, under Bill C-13 a reprisal will be considerably more difficult to establish, as the burden will be on the Crown Prosecutor to prove intentional conduct and the charges beyond a reasonable doubt. This suggests that prosecutors will only pursue the most egregious reprisal cases. However, the potential consequences of being found guilty are far more significant.

### **Penalties under Bill C-13**

Bill C-13 provides for severe penalties for employers or individuals convicted under the reprisal provisions. As with Bill C-45, there is no limit on the amount of the fine for a corporation when the Crown proceeds by indictment. Individuals face jail terms of up to five years in a federal penitentiary for contravention of the reprisal provisions (section

425.1 (2) *Criminal Code*). Imagine a human resources professional, safety professional or manager facing a penalty of this nature for a threat of discipline or disciplinary action.

### Employer response to Bill C-13

The addition of reprisal provisions to the *Criminal Code* is another example of the inclusion of matters ordinarily covered by provincial legislation in the *Criminal Code*. As is the case with Bill C-45, employers that stringently ensure that they are not contravening the *Occupational Health and Safety Act* reprisal provisions should not run afoul of the *Criminal Code*.

Given the potentially serious consequences of a criminal conviction, it is more important than ever to ensure that policies and procedures for response to complaints, and which clearly denounce reprisal action, exist and are enforced. It remains important that employers train managers and supervisors to appreciate that engaging in any reprisal with respect to health and safety is illegal and will not be tolerated. The employer should scrupulously investigate and document any situation where discipline could be taken against an individual who could claim reprisal, and seek advice from a professional as necessary. Employers should also confirm that measures are in place to ensure that witnesses are present and complete documentation is kept when discipline is imposed for any reason. These measures make it easier for the employer and its representatives to respond to any complaint that may arise.

The *Criminal Code* reprisal provisions do not represent a significant change to employers' obligations in the area of OHS. But they do up the ante considerably with respect to penalties for the most serious reprisal contraventions, providing considerably more incentive to ensure compliance with legal obligations in this regard.

*The CFSA would like to thank Accident Prevention for allowing us to reprint this article for the benefit of our membership. For more information on this article, Accident Prevention staff can be contacted at 416.506.8888.*

## Private Member's Bill 184

Bill 184, "An Act to require the Building and Fire Code to provide for fire detectors, interconnected fire alarms and non-combustible fire escapes" is a private member's bill brought forward by MPP Michael Prue (Beaches/East York). The bill received first reading on April 7, 2005.

The intent of the bill is to amend the 1992 *Building Code Act* and the 1997 Fire Prevention Act to require all residential buildings with two or more dwelling units to be equipped with fire detectors in all public corridors and common areas and interconnected fire alarms that would be audible throughout the building. In addition, all fire escapes would be required to be constructed of noncombustible materials



## Bill 124 Testing Deadline Extended

On May 19, 2005, O.Reg. 236/05 was filed amending the *Building Code* to extend the implementation period of the building regulatory changes from July 1, 2005 to January 1, 2006 for certain key elements, specifically:

- The qualification requirements for building officials and designers;
- The registration requirements (i.e. qualified staff and insurance) for designers;
- The timeframes for the review of building permit applications by municipalities; and

- The commencement of the first reporting period for the annual building permit fee report to be prepared by municipalities.

These amendments are in response to stakeholder concerns raised during the implementation period with the ability of certain building officials and designers to meet some of the new requirements by July 1, 2005. The extended implementation period only applies to the elements listed above; many of the changes to the *Building Code Act*, 1992 and *Building Code* will continue to take effect July 1, 2005.

## CFSA Annual Education Forum

April 20th, 2005

The 2005 CFSA Annual Education Forum was held at the Toronto Fire Services Fire Academy. The topic of focus which kicked off this year's forum was residential sprinklers: Vision or Reality presented by Linda Jeffrey, MPP Brampton Centre, Brian Maltby, Chief Fire Official for the City of Brampton and Matt Osburn, Codes and Technical Services Manager for CASA.

Other presentations included Trends and Evolution of Joint and Penetration Firestopping by Toni Crimi, President of A.C. Consulting Solutions Inc., Industrial Explosion Protection by Ed Chovenac, Central Regional Manager for Fike Canada Inc. and Fire Rated Door Hardware Issues by Gerald Atkin, Corporate Specifications for Yale-Corbin Canada Ltd.

An overview of the presentations can be found throughout this newsletter. We would like to thank all of 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.

Education Chair, Rich Morris also presented five (5) students with scholarship awards, including the CFSA Peter Stainsby award, CFSA Fire Safety award, CFSA Leber/Rubes Inc. award, CFSA Randal Brown & Associates award and the CFSA Nadine International Inc. award.

The CFSA would like to thank the Toronto Fire Services for their continued support and contribution to the Annual Education Forum. Special thanks go to Rick Simpson, Rick Florio and Jon Winton of the CFSA Education Forum Committee and Taylor Enterprises for all of their efforts. 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 2005 Annual Education Forum, please submit them to [cfsa@taylorenterprises.com](mailto:cfsa@taylorenterprises.com).

## New NRC Publications

The Institute for Research in Construction at the National Research Council (NRC) has released the following new publications:

- "Thermal properties of lightweight-framed construction components at elevated temperatures", *Fire and Materials Journal*, 29, May/June, pp. 165-179, May 01, 2005 (NRCC-46907), Bénichou, N.; Sultan, M.A.
- *Review Fire Statistics Collection in Canada, Research Report*, Institute for Research in Construction, National Research Council

Canada, (198), pp. 14, June 28, 2005 (IRC-RR-198), Bounagui, A.; Bénichou, N.

- *Fire Resistance Tests of Non-Insulated Walls with Parallel and Perpendicular Orientation of Gypsum Board, Research Report*, Institute for Research in Construction, National Research Council Canada, 188, pp. 31, June 27, 2005 (IRC-RR-188), Bwalya, A.C.

For more information on these publications visit [www.irc.nrc-cnrc.gc.ca/newpubs.html](http://www.irc.nrc-cnrc.gc.ca/newpubs.html)

## ULC Announces the Publication of National Standards of Canada

Underwriters' Laboratories of Canada announces the publication of the new edition of CAN/ULC S503-05, Carbon-Dioxide Fire Extinguishers, CAN/ULC-S507-05, Water Fire Extinguishers, CAN/ULC-S554-05, Water Based Agent Fire Extinguishers, as well as the First Edition of CAN/ULC-S566-05, Halocarbon CI Underwriters' Laboratories of Canada announces the publication of the New Editions of CAN/ULC-S503-ean Agent Fire Extinguishers.

These Standards will be of interest to manufacturers, distributors, regulators or inspectors of fire extinguishers. These types of fire extinguishers are intended to be utilized in accordance with the *National Fire Code of Canada* and various other Federal, Provincial, and Municipal Codes and Regulations.

# Industrial Explosion Protection

This article was provided by Rocky Mino, Technical Consultant for Leber/Rubes Inc.

At the April 2005 CFSA Annual Education Forum, Ed Chovanec of Fike Canada Inc. provided a presentation on Industrial Explosion Protection for all attending CFSA members and guests. The session covered industrial explosion fundamentals including; equipment at risk, explosibility of dusts, explosibility testing, explosion venting, suppression, propagation concerns and isolation.

The session began with an overview of some interesting explosion facts and figures. For example:

- dust collectors experience the most deflagrations then any other equipment type,
- statistics on U.S Grain-Dust Explosions between 1990-1999:
  - Total: 129
  - Fewest: 6 (1992)
  - Most: 18 (1998)
  - Total Killed or Injured: 156
  - Total Damage: \$98,700,000
  - Highest Hazard: Corn (62 Incidents)
  - Bucket Elevators in 64 incidents

For clarification purposes, it was explained that an explosion or deflagration must have four (4) ingredients present in order to occur:

- Fuel – Dust or Gas, or both. Dust must be in suspension.
- Oxygen – Oxygen in air, oxygen, chlorine, nitrous oxide, etc.
- Ignition Source – Sparks from electrostatic discharges, impact sparks, hot embers, welding torch, flames, human error, etc.
- Containment

The next question that was answered was, “What can explode?” The explosibility rule of thumb is, “If it will burn as a solid, it can deflagrate or detonate as a dust in suspension.”

The main types of equipment or processes at risk are dust collectors, pulverizers, filter re-



ceivers, pneumatic grinders, spray dryers, thermal oxidizers, fluid beds, ovens, Cyclones, Dryers, Silos, Conveyors, Vibrating Screens, Bucket elevators, etc.

Protection for such equipment or processes can be accomplished by either a preventative approach or a responsive approach. The preventative approach involves limiting the oxygen supply, controlling the fuel concentration, eliminating any ignition sources, detecting and responding to sparks and attempting to prevent human error. The responsive approach involves containment, flame venting, flameless venting, isolation and suppression.

Explosion containment can involve designing the vessel to withstand the maximum possible generator pressure and the vessel must be isolated to prevent flame and pressure propagation. All vessels must be constructed in accordance with ASME VIII “Pressure Vessel Code”, which can become very expensive.

Explosion venting is the most widely used

method and involves a predetermined area (explosion vent) releasing pressure at a given level resulting in a reduced pressure. By this design, the explosion flame, pressure and unburned mixture are vented to a safe area.

## Advantages of Explosion Venting

- Relatively inexpensive,
- Easy to install or replace,
- Little or no maintenance is required,
- Passive system.

## Considerations

- Releasing pressure does not put out the flame,
- Flame, pressure and unburned products will exit through the vent and may cause further damage or injury,
- Toxic product may be dispersed into the atmosphere,
- More vent area than can practically be installed may be needed.

Flameless venting can also be used which has the following advantages; no associated





flame and it permits indoor venting. Considerations involving flameless venting include the fact that it does not address flame propagation, system cost, large areas are required and it is unsuited for gases.

Explosion isolation can be used to prevent explosion pressure and flame from propagating through process interconnections to other plant equipment or personnel occupied space. Explosions in connected vessels tend to be more severe than explosions occurring in single unconnected vessels due to pre-compression and flame-jet ignition and because deflagration can accelerate to detonation velocities while traveling through pipelines.

#### Advantages of Explosion Isolation

- Prevents flame and/or pressure propagation,
- Prevents secondary explosions,
- Permits vents and containment to perform as designed.

#### Considerations

- Schedule 40 piping / 150# flanges are required,
- An active system that requires maintenance.

If any of the previous types of protection are not possible because the vessel is not close to a wall, the vessel won't withstand the minimum design pressure if the vent is duct or the building modifications will be too expen-

sive, explosion suppression can be considered.

Applications where explosion suppression should be considered include when indoor equipment can't be practically vented, toxic applications, where a release of any kind is prohibited or when there is a dimensionally restricted area.

#### Advantages of Explosion Suppression

- Process media is contained,
- Can be used inside buildings (near personnel),
- Eliminates the possibility of ensuring fire (after initial deflagration),
- Can provide automatic process shutdown.

#### Consideration

- An active system that requires maintenance.

Explosion risks are an industrial reality. Equipment loss, down time, environmental issues and hazards to personnel can be avoided through the application or combination of explosion venting, suppression and/or isolation.

From the presentation given by Ed Chovanec, we can see the importance, advantages and considerations of explosion protection. The CFSA would like to thank Mr. Chovanec for his very informative seminar as his time and expertise was greatly appreciated.

## Welcome to the following New Members



#### STUDENT

**Steven Valk**, Oshawa, ON  
**Mahnaz Gharahdaghi**, Toronto, ON  
**Kyle Kieraszewicz**, Toronto, ON

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 Dinner Meeting reservations, technical  
 sessions, and much more.

# Residential Sprinklers: Vision & Reality

This article was provided by Laura Muirhead, Technical Consultant for Leber/Rubes Inc.

The CFSA Annual Education Forum was privileged to be addressed by Linda Jeffrey, MPP for Brampton-Centre, Brian Maltby, Chief Fire Official for Brampton Fire and Emergency Services, and Matthew Osburn, Code and Technical Services Manager, Canadian Automatic Sprinkler Association (CASA), on the topic of residential sprinklers.

Ms. Jeffrey introduced private members Bill 141, *The Home Fire Sprinklers Act*, which passed second reading in November 2004. Bill 141 is an *Act* to amend the *Building Code Act*, 1992 respecting home sprinklers. The bill would require all new detached, semi-detached and row houses to have residential sprinkler systems installed. Attendees of the seminar were provided with an overview of the history of, and reasons for, this bill, as well as an update on its status.

Both Ms. Jeffrey and Mr. Maltby spoke at length about the reasons why home fire sprinklers are so important. Obviously, saving lives is the primary motivation for sprinklers to be made mandatory in all new residences, and it is difficult to argue against the effectiveness and benefits of this proven technology when faced with widely established statistics.

Ms. Jeffrey and Mr. Maltby point to Vancouver, British Columbia and Scottsdale, Arizona, as examples of municipalities where the mandatory installation of residential sprinklers has resulted in zero fire deaths and has substantially reduced property losses in homes that were protected by sprinklers.

In fact, those who oppose this legislation do not argue the benefits to installing residential sprinkler systems, instead arguing that the installation of sprinklers will substantially raise the cost of new homes, and that sprinklers are likely to cause property damage by accidentally discharging. Ms. Jeffrey opposes these points of view, stating that the approxi-



mate additional cost of installing sprinklers to a new home is only 1.5%. As well, since sprinkler systems are thoroughly tested, it is unlikely for accidental discharges to occur (approximately 1 in 16 million sprinkler heads in use each year). She also pointed out a potential cost saving benefit to builders who sprinker homes, whereby they may face less restrictions in certain aspects of construction, such as set backs, turning radius, hydrant distances, etc.

Other points of interest discussed by Ms. Jeffrey and Mr. Maltby include the 82% reduction in the risk of fire-related deaths in homes equipped with sprinklers and smoke alarms (compared to only 50% in homes equipped only with smoke alarms). As well, given the higher quantity of plastics in today's average home, the potential exists for flashover to occur much more quickly (less than 3 minutes in a study at Camp Borden by the Office of the Ontario Fire Marshal), mak-

ing response times for firefighters a critical factor. Sprinklers could buy families and emergency responder's valuable time, both in escaping a fire and in controlling and extinguishing a fire.

Following the presentations by Ms. Jeffrey and Mr. Maltby, Mr. Matthew Osburn presented valuable background information on residential sprinklers. He discussed the history of residential sprinklers, such as the Grinnell Company developing the first residential sprinkler system in 1932, and the first standard developed by the National Fire Protection Association in 1975, NFPA 13D, "Sprinkler Systems for One and Two Family Dwellings and Mobile Homes".

Mr. Osburn went on to discuss the water supply requirements for residential sprinkler systems as defined within NFPA 13D as well as requirements regarding valves, piping and fittings and sprinkler heads. He outlined

some of the special exemptions that NFPA 13D permits, such as not being required to sprinkler bathrooms 55 ft<sup>2</sup> or less in area, or not being required to sprinkler an entrance foyer as long as the foyer is not the sole means of egress.

Mr. Osburn highlighted some of the system design requirements, specific discharge criteria and hydraulic calculations required by NFPA 13D. In addition, he discussed some of the new technology and trends in residential sprinkler systems, including advanced technology in sprinkler head design, the introduction of cross-linked PEX tubing into the residential market, multipurpose piping systems and network systems.

Like Linda Jeffrey and Brian Maltby, Matt detailed the benefits to residential sprinkler systems, quoting some of the following statistics obtained from the Scottsdale, Arizona 15 year study (where residential sprinkler systems were mandated in 1986):

- 41,048 homes are equipped with residential sprinklers (more than 50%),
- Out of 598 home fires, 49 occurred in sprinklered homes, resulting in:
  - no deaths in the sprinklered homes,



- 13 deaths in the non-sprinklered homes,
  - fires were controlled with two heads or less, 92% of the time.
  - The average fire loss per single family in sprinklered fire incidents was \$2,166 (15 years, 49 fires),
  - The average fire loss per unsprinklered residential incident was \$45,019 (1998-2001, 86 fires)
- Bill 141 has received support from all three parties, and has served to provoke discussion

and hopefully future changes to legislation relating to residential sprinklers. Currently being reviewed in parliamentary committee, if the bill passes third reading, it will become law, amending the *Building Code Act*, 1992 to ensure that all new detached, semi-detached and row houses are equipped with fire sprinkler systems.

In conclusion, Ms. Jeffrey reiterated the need to generate awareness of this matter by promoting the issue of residential sprinklers to the public and government. Methods of doing so include contacting Members of Provincial Parliament and municipal representatives, or becoming involved with organizations such as FireSAFE Ontario, a group of concerned citizens from various walks of life with the common interest of promoting home fire sprinklers.

“The best time to install sprinklers was 25 years ago. The second best time is now.”

*Brian Maltby*

*Thank you to Linda Jeffrey, Brian Maltby and Matthew Osburn for their inspiring and informative presentation to the CFSA 2005 Annual Education Forum members and guests.*

# *In Memorium*

## **Jack Duggan**

Founding Director CFAA

It is with sad regrets that we announce the passing of Jack Duggan; Founder, Chairman and CEO of Fire Detection Devices and Electronic Surveillance Corporation on Saturday, July 2, 2005.

Born on July 8th, 1914, Jack continued to devote his endless time, energy and dedication to his business, family, employees, church and friends right up to the day of his death in spite of enduring extreme pain and suffering due to ill health.

A Founding Director of the CFAA, Jack was a peerless leader in moving our industry forward during the 60's, 70's and 80's and 90's. He served on numerous ULC Committees, was Chair of the Fire Detection Institute, a Director of the American Fire Alarm Association, Canasa and numerous other fire related Trade Associations.

Jack was awarded the D.F.C. during service with the RCAF Bomber Command in WW2 and was Past Chair of the Toronto Board of Trade.

# Trends and Evolution of Joint and Penetration Firestopping

This article was provided by Janet O'Carroll, Vice-President of Innovative Fire Inc.

Toni Crimi of A/C Consulting Solutions Inc. presented the topic of Trends and Evolution of Joint and Penetration Firestopping to members and guests at this year's Annual Education Forum.

A Firestop System is defined as an assemblage or combination of materials forming a complex unit or whole acting together in a specific construction.

Types of Firestop Systems include penetrations (i.e. pipes, cables, etc.), joints, perimeter (i.e. curtain walls) and walls/ceilings. There are numerous types of products currently available to used in firestop systems including:

- Caulks (applied with a caulking gun),
- Putties (pressed into openings),
- Wraps and strips (wrapped around objects or gaps),
- Composite sheet (metal panels sandwiched around intumescent material),
- Plastic pipe devices (metal supporting collars),
- Firestop sprays (elastomeric latex material sprayed or brush applied),
- Firestop mortar (plaster like material trowelled, pumped or poured into large openings),
- Firestop foam (similar to caulk for small to medium, irregular shaped openings),
- Firestop pillow bags (used to fill large openings around cable trays in combination with putties and caulks which are removable and replaceable).

Mr. Crimi defined common terminology used in listing directories (such as ULC

Firestop Systems and Components Listing Directory) including intumescent, batts and blankets, packing or forming material, cables and cable trays, metallic and non metallic pipe, pipe insulation and annular space.

Currently the *National Building Code of Canada* (NBC), Sentence 3.1.9.1.(1) states, "Piping, tubing, ducts, chimneys, optical fibre cables, electrical wires and cables, totally enclosed noncombustible raceways, electrical outlet boxes and other similar building services that penetrate a membrane forming part of an assembly required to have a fire-resistance rating, or a fire separation, shall be a) tightly fitted, or b) sealed by a fire stop system that, when subjected to the fire test method in CAN4-S115-M, "Standard Method of Fire Tests of Firestop Systems," has an F rating not less than the fire-protection rating required for closures in the fire separation."

Since "tightly fitted" has never been a well

defined term, proposed changes to the new edition of the NBC would redefine "tightly fitted" to "poured in place", for which the term "tightly fitted" was originally intended.

In addition Sentence 3.1.9.1.(2) of the NBC states, "Piping, tubing, ducts, chimneys, optical fibre cables, electrical wires and cables, totally enclosed noncombustible raceways, electrical outlet boxes and other similar building services that penetrate a firewall or a horizontal fire separation that is required to have a fire-resistance rating in conformance with Article 3.2.1.2., shall be sealed at the penetration by a firestop system that, when subjected to the fire test method in CAN4-S115-M, "Standard Method of Fire Tests of Firestop Systems," has an FT rating not less than the fire-resistance rating for the fire separation". The use of FT ratings here in Canada is very limited in use, whereas in the United States they are used far more often.



As well, Sentence 3.1.9.4.(4) states, “Combustible drain, waste and vent piping is permitted to penetrate a fire separation required to have a fire-resistance rating or a membrane that forms part of an assembly required to have a fire-resistance rating, provided a) the piping is sealed at the penetration by a fire stop system that has an F rating not less than the fire-resistance rating required for the fire separation when subjected to the fire test method in CAN4-S115-M, “Standard Method of Fire Tests of Firestop Systems,” with a pressure differential of 50 Pa between the exposed and unexposed sides, with the higher pressure on the exposed side, and b) the piping is not located in a vertical shaft.” Furthermore, Sentence 9.10.9.7(3) states “The rating referred to in Sentence (2) shall be based on ULC-S115, “Fire Tests for Fire Stop systems,” with a pressure differential of 50 Pa between the exposed and unexposed sides, with the higher pressure on the exposed side.”

The standard used to test firestopping systems here is Canada is CAN/ULC-S115, “Standard Method of Fire Tests of Fire Stop Systems”. In the US, standards including ASTM 814 or UL 1470, “Fire Tests of Through Penetration Fire Stops”, ASTM E1966 or UL 2079, “Tests for Fire Resistance of Building Joint Systems”, and ASTM E2307, “Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems” are used.

In Canada there are five (5) types of ratings as follows:

- F Rating – The firestop system must remain in the opening without permitting passage of flame through openings, or the occurrence of flaming on any element of the unexposed side of the firestop system.
- FT Rating – In addition to meeting the F Rating requirement, no heat transmission such as to raise the temperature of any thermocouples on the unexposed surface more than 181 C above its initial start temperature.
- FH Rating – In addition to the F Rating requirement, an opening must not develop that would permit projection of the hose stream applied to the unexposed side.



- FTH Rating – The firestop system must meet the F, FT and FH Rating requirements.
- Optional L Rating – Air leakage expressed as volume of air/cross sectional area of sample opening.

There are several laboratories that currently test firestop systems, such as Underwriters’ Laboratories of Canada (ULC), Underwriters’ Laboratories Inc. (UL), Warnock Hershey (WHI) and Omega Point Laboratories Inc. (OPL). Each testing laboratory publishes approved firestop systems in their own directory, however, there is no common language used between the laboratories to identify the type of firestop system. For example: ULC will use SP followed by a number (i.e. SP123) to identify an approved design for a penetration protected by firestopping, whereas WHI will use a completely different identification such as XX/PHV- 120-01, which defines the company initials, and a vertical or horizontal penetration tested for 2 hours.

Testing a product in the laboratory to determine its level of performance is generally completed under ideal conditions, products are installed in the field the actual fire-resistance rating can be affected by numerous factors, including method of installation, type

of fire resistance rated construction, training and expertise of the installation crew, quality control of materials, material storage and shelf life and environmental conditions. New standards such as ASTM Inspection Standards (ASTM E2174-04) and installer qualification standards (ASME A112.20-2004) look to address some of these field problems.

As technology advances, resulting in the introduction of new materials that are required to be firestopped (i.e. optical cables, etc.), and as the industry looks to address environmental factors, new testing criteria is being developed, including environmental testing of firestop and joint materials, static and dynamic joint firestop systems and water tightness ratings. Currently and in future editions of CAN/ULC-S115, changes such as the inclusion of joint testing, leaving pipes uncapped on the cold side of the furnace, aging environmental exposure to address the effect of aging firestop materials, societal and other environmental issues and air quality and energy conservation may become a reality.

The CFSA would like to thank Toni Crimi for his excellent presentation on Trends and Evolution of Joint and Penetration Firestopping.

# Fire Rated Door Hardware Issues

At the 2005 Annual Education Forum, Gerry Atkins of Yale-Corbin Canada provided a seminar on Fire Rated Door Hardware Issues to CFSA members and guests.

The presentation covered door and hardware code requirements, life safety requirements, barrier free compliance and electro-mechanical hardware.

There are three (3) main issues surrounding a fire rated door (other than the actual rating of the door and frame) including hanging the door, locking or latching the door and controlling the door.

## Door and Hardware Code Requirements

Requirements for fire rated door hardware can be found in NFPA 80, "Standard for Fire Doors and Fire Windows" and the Ontario Building Code (OBC).

### Door Hinges

NFPA 80 requires hinges to be steel anti-friction hinges (or as tested) and a minimum of three (3) hinges must be installed per leaf or door.

### Door Latches

A swing type door is required to latch under the OBC. NFPA 80 requires single doors to



use a latch with a 1/2 inch projection and pairs of doors to use a 1/2 inch projection. Where pairs of doors are installed, both doors are required to latch.

### Life Safety Requirements

#### *Self Closing Devices*

NFPA 80 requires a door designed to normally be kept closed in a means of egress shall be a self closing door and shall not be secured in the open position at any time. The OBC requires every fire door to be equipped with a self closing device except for freight elevator, dumbwaiters, classrooms, office entry in buildings not more than 3 floors and patient or resident rooms in a hospital or nursing home.

#### *Panic Hardware*

NFPA 80 requires that only approved panic hardware is permitted to be used on doors that are not fire doors and only approved fire

exit hardware is permitted to be used on fire doors. The OBC requires doors serving more than 100 people be operated by a device that releases in the direction of exit travel. Finally, NFPA 101, "Life Safety Code" defines panic hardware and fire exit hardware as consisting of a cross bar or push pad, where the actuating portion extends not less than  $\frac{1}{4}$  the door width, located not below 860 mm and not above 1200 mm.

#### *Barrier Free Compliance*

Barrier-free is defined in the OBC as a building and its facilities that can be approached, entered, and used by persons with physical or sensory disabilities. In regards to fire rated door hardware, the OBC requires the following:

- Every doorway that is located in a barrier-free path of travel shall have a clear width of not less than 810 mm (32 in).



- Closers be designed to operate with a force not more than 38 N (8.5 lbs) for exterior doors and 22 N (4.9 lbs) for interior doors where door operators have not been installed.

- Door opening devices that are the only means of operating shall not require tight grasping or twisting of the wrist.

#### ***Electro-mechanical Hardware***

There are four (4) main categories of electro-mechanical hardware for building access control including:

- Electric strikes,
- Electromagnetic locking devices,
- Electric locks,
- Electric exit device.

Each type of electro-mechanical hardware has installation restrictions and/or requirements.

The CFSA would like to thank Gerry Atkins for an informative presentation on fire rated door hardware issues.

# CFSA Newsletter in Electronic Format

Since the introduction of the "Members Section" on the CFSA website, the CFSA Newsletter has been made available to all members in a downloadable electronic format.

Now all members who have registered an email address with CFSA will be receiving an electronic copy (.pdf format) of the CFSA newsletter instead of a printed copy on a quarterly basis. Those members who have not registered an email address with the CFSA will continue to receive a printed copy of the CFSA Newsletter.

For those members who still wish to receive a printed copy of the newsletter, please fax the form below to 416.491.1670 attention Mary Lou Murray.

Members who have yet to register an email address with the CFSA can do so by emailing us at [cfsa@taylorenterprises.com](mailto:cfsa@taylorenterprises.com).

I wish to receive a printed copy of the CFSA Newsletter.

Name

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# CFSA Scholarship Awards

The Canadian Fire Safety Association (CFSA), Education and Scholarship Committee for a 2nd year, has secured funding for five (5) substantial scholarships. These scholarships are given to the top fire protection students in their category as follows:

#### CFSA Peter Stainsby Award (\$1000.00)

Presented by the CFSA to the TOP GRADUATE of a three-year Fire Protection Technology course, who has excelled with outstanding leadership, motivation and technical skills and an overall academic proficiency.

#### CFSA Fire Safety Award (\$750.00)

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 Technology course with outstanding leadership, motivation and technical skills and an overall academic proficiency.

#### CFSA Leber/Rubes Inc. Award (\$750.00)

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 (\$750.00)

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 (\$750.00)

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.

The Canadian Fire Safety Association, Education and Scholarship Committee provides scholarships to the top fire protection students each year in conjunction with three notable and generous fire protection consulting companies, including:

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

The 2004-2005 Scholarship award winners are:

**CFSA Peter Stainsby Award** Presented to: **Michael Eldridge** – Seneca College

**CFSA Fire Safety Award** Presented to: **Colin Lahey** – Seneca College

**CFSA Leber/Rubes Inc. Award** Presented to: **Peng Yu** – Seneca College

**CFSA Randal Brown & Associates Award** Presented to: **Wen Xu** – Seneca College

**CFSA Nadine International Inc. Award** Presented to: **Erin Dunn** – Seneca College



from left to right: Stu Evans, Michael Eldridge, Alan Kennedy, Rich Morris



Top row left to right: Alan Kennedy, Randal Brown, Stu Evans, Rich Morris, Ajward Gebara  
Bottom row left to right: Wen Xu, Peng Yu, Michael Eldridge, Colin Lahey, Erin Dunn



The CFSA has and will continue to support the top students in the field of fire protection who show leadership, motivation, technical skills and an overall academic proficiency. In order to create a fire safe environment for Canada in the future, we must encourage those students to one day become leaders in their field.

## Our thanks to those who donated...

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### CFSA Events

The CFSA will resume dinner meetings and technical sessions in September 2005. A list of CFSA events occurring in the fall will be available in the Fall edition of the newsletter and on the website.

#### Dinner Meetings

- September 21, 2005
- November 23, 2005
- January 18, 2006
- March 22, 2006

#### Technical Sessions

- October 5, 2005
- November 2, 2005
- December 7, 2005
- February 1, 2006
- March 1, 2006

#### Other Events

- August 28 – 31, 2005**  
 Ontario Association of Building Officials  
 Annual Meeting & Training Sessions  
 North Bay, ON
- September 18 – 21, 2005**  
 Canadian Association of Fire Chiefs Fire  
 Rescue 2005 Training and Education  
 Symposium  
 Richmond, BC
- September 18 - 21, 2005**  
 CACF Fire Rescue 2005 Training and Education  
 Symposium  
 Richmond, BC
- October 13 – 15, 2005**  
 2005 Manitoba Emergency Services Conference  
 MB
- October 19 – 20, 2005**  
 MBOA Fall Seminar & Trade Show  
 Canada Inns Polo Park, MB
- November 16 - 18, 2005**  
 13th Annual Fire and Life Safety Educator's  
 Conference  
 Simcoe, ON
- November 30 – December 2, 2005**  
 PM Expo  
 Toronto, ON

## Fireworks cause increasing concern

The fire service was dismayed by the number of fires caused by the careless use of fireworks over the Victoria Day holiday weekend. The misuse of fireworks by children and young adults is cause for concern and has led some municipalities to consider banning the sale and use of consumer/family fireworks.

According to this year's statistics, Toronto Fire Services reports fireworks as the ignition source for 34 fires. Of these, 31 occurred over the Victoria Day weekend and caused more than \$300,000 in property damage. Another recent fire, still under investigation, is believed to also have been ignited by fireworks. This fire gutted two homes and three cars for an estimated preliminary loss of \$600,000.

Fortunately, there were no fatalities in any of these fires.

The Office of the Fire Marshal (OFM) does not recommend backyard or family-gathering fireworks, or informal neighbourhood displays. Instead, the OFM strongly suggests the public attend fireworks displays prepared and put on by trained fireworks professionals and organized by responsible organizations such as the municipality.

The OFM has developed a fact sheet titled *Fireworks Safety Tips* and a sample news release to raise public awareness about fire prevention. For more information visit their website at [www.ofm.gov.on.ca](http://www.ofm.gov.on.ca).

## NFPA Members vote to require sprinkler protection

History was made on June 9, 2005 at the NFPA World Safety Conference & Exposition® when Association members voted to adopt the 2006 edition of NFPA 101, *Life Safety Code*®, and NFPA 5000®, *Building Construction and Safety Code*® the first model codes in the United States to require automatic sprinkler protection in new one- and two-family dwellings.

The sprinkler provision was added to the *Life Safety Code* and *Building Construction and Safety Code* in recognition of the unacceptable number of lives lost in dwelling fires every year and the cost-effectiveness of residential sprinklers which have an unparalleled track record for saving lives. The vote, which serves as a recommendation to NFPA's Standards Council (the body that will ultimately issue the code) was overwhelmingly in favor of the new sprinkler provision.

The Association membership vote affirms the action taken by the NFPA Technical Committee on Residential Occupancies, which also approved the sprinkler requirement through the NFPA open-consensus code development process. The NFPA Standards Council will consider the 2006 editions of the *Life Safety Code* and *Building Construction and Safety Code* at its meeting in July.

## Code Corner

### 2005 National Building Code

The 2005 *National Building Code of Canada* will be released and available for purchasing starting September 2005.

Some of the new features include:

- Over 800 technical changes in the 2005 NBC,
- New information, namely the objectives and functional statements, designed to improve clarity and consistency in the application of the codes' requirements,
- A new organizational layout. The *Code* will comprise three divisions: Divisions A, B and C.

The document will be available in two (2) printed formats; an binder version and a soft-cover version. These documents consist of two (2) volumes; Volume 1 – Divisions A, B & C, and Volume 2 – Appendices to the NBC.

A CD-Rom version will also be available in early 2006 complete with intent and application statements.

For more information regarding the new 2005 edition of the NBC visit [www.nationalcodes.ca/nbc/index\\_e.shtml](http://www.nationalcodes.ca/nbc/index_e.shtml).

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# Member's *Forum*

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](mailto:www.cfsa@taylorenterprises.com) Website: [www.canadianfiresafety.com](http://www.canadianfiresafety.com)**

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# CFSA

## Membership Application Form

### Why Corporate Membership?

Corporate Membership is cost effective because it allows any number of individuals from your organization to participate in the many functions provided by CFSA throughout the year. Any number of persons can attend our monthly dinner meetings/technical sessions or our annual conference at the preferred member's rate.

#### Basic Corporate

Includes 3 individual memberships; member's rate for all staff at dinner meetings, technical seminars and Annual Education Forum and Trade Show; Company recognition in each of the four issues of the CFSA Newsletter.

#### Class 4 Corporate

Same as Basic Corporate as well as one exhibit table at the Annual Education Forum and Trade Show and a Business Card advertisement in each of the four issues of the CFSA Newsletter.

#### Class 3 Corporate

Same as Basic Corporate as well as one exhibit table at the Annual Education Forum and Trade Show and a 1/4 page advertisement in each of the four issues of the CFSA Newsletter.

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#### Class 1 Corporate

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#### Membership Fees

	Fee	+7% GST	Total
<input type="radio"/> Class 4 Corporate	\$ 625.00	\$ 43.75	\$ 668.75
<input type="radio"/> Class 3 Corporate	\$ 704.00	\$ 49.28	\$ 753.28
<input type="radio"/> Class 2 Corporate	\$ 867.00	\$ 60.69	\$ 927.69
<input type="radio"/> Class 1 Corporate	\$ 1,187.00	\$ 83.09	\$ 1,270.09
<input type="radio"/> Basic Corporate	\$ 347.00	\$ 24.29	\$ 371.29
<input type="radio"/> Individual	\$ 65.00	\$ 4.55	\$ 69.55
<input type="radio"/> Student	\$ 25.00	\$ 1.75	\$ 26.75
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#### CFSA Application for Membership

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| <input type="radio"/> Fire Protection Manufacturer/Supplier |                                       |
| <input type="radio"/> Building Owner/Developer/Manager      |                                       |
| <input type="radio"/> Other (please specify) _____          |                                       |

#### Method of Payment:

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Signature \_\_\_\_\_

**Please return this completed form with membership fees to:**

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#### CFSA Policy Statement

The Federal Government has introduced new privacy legislation effective January 1, 2004. CFSA respects your privacy and has included their privacy statement on the CFSA website at [www.canadianfiresafety.com](http://www.canadianfiresafety.com) for your review.

CFSA does not share your information with any other organization. Paying your membership renewal with CFSA indicates that you wish to continue receiving Association information.



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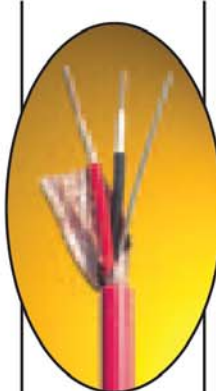
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