

CFSA news

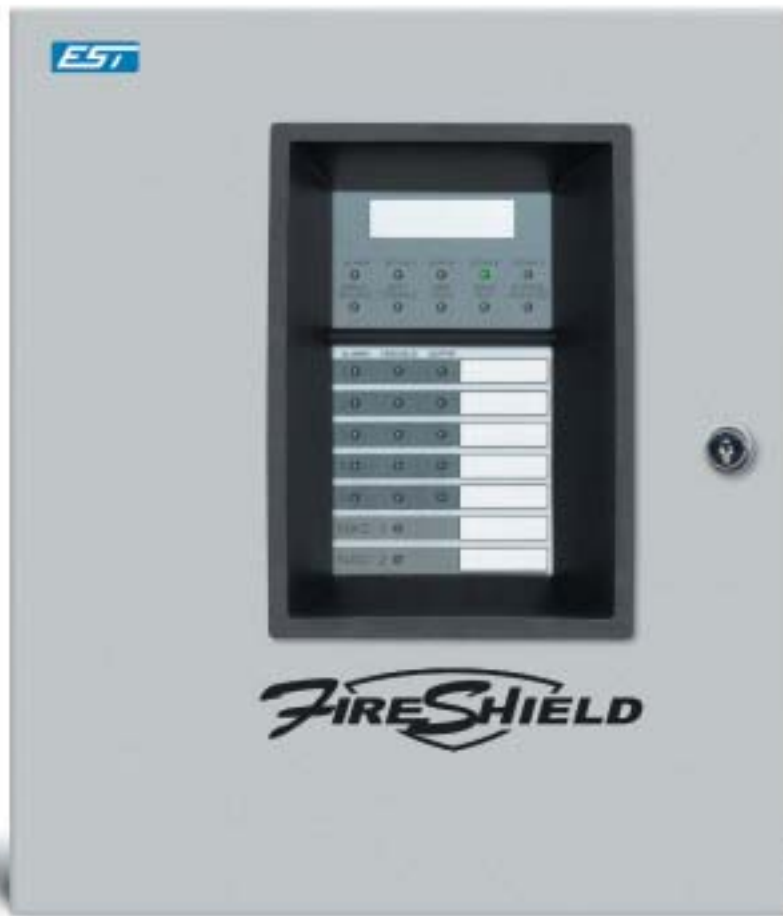
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Editor: Janet O'Carroll

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

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:

	Member Rate	Non-Member Rate
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1/2 Page	\$100	\$200
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For more information regarding advertising in the CFSA Newsletter, please contact Sherry Denesha at (416) 492-9417 or 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

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Your comments, suggestions and articles are welcome. Please send them to the attention of: The Editor
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Janet O'Carroll

PRESIDENT'S message

I attended my first CFSA event while I was studying Fire Protection Engineering Technology at Seneca College. At the time, Seneca had a student CFSA chapter which periodically held dinner meetings in the Missing Link (better known as the student pub). I can remember attending the dinner meeting and being in 'awe' of the whole event. An opportunity to gain knowledge on topics in our industry and network with professionals at a low student fee...how can you beat that? It was an experience that I have never forgotten.

It was then that I decided to become more involved by participating in CFSA events such as the dinner meetings, technical sessions and the Annual Education Forum, eventually joining the Board of Directors in 2000. As a result of my involvement, I became truly convinced of the value of continuous education as our industry changes due to technological innovation, response to fire losses and research developments. I am proud to be part of an organization that provides this opportunity, and supports the students who may one day become leaders in our industry.

Thank you for electing me as President of the Canadian Fire Safety Association. It is an honour for me to fulfill this position over the next term and I look forward to the challenge. On behalf of the Board of Directors and membership, I would like to thank Alan Kennedy for his dedication over the last two years as President. We are pleased that Alan will continue on the Board as Past President.

I would also like to thank all of the Board of Directors for their continued support during their tenures and would like to welcome the new members who will be joining the board this year. Regretfully, the Board has accepted the resignation of David Johnson, Rick Florio, Rick Simpson and Mike Boyle. We appreciate their participation on the Board and wish them all the best in their future endeavors.

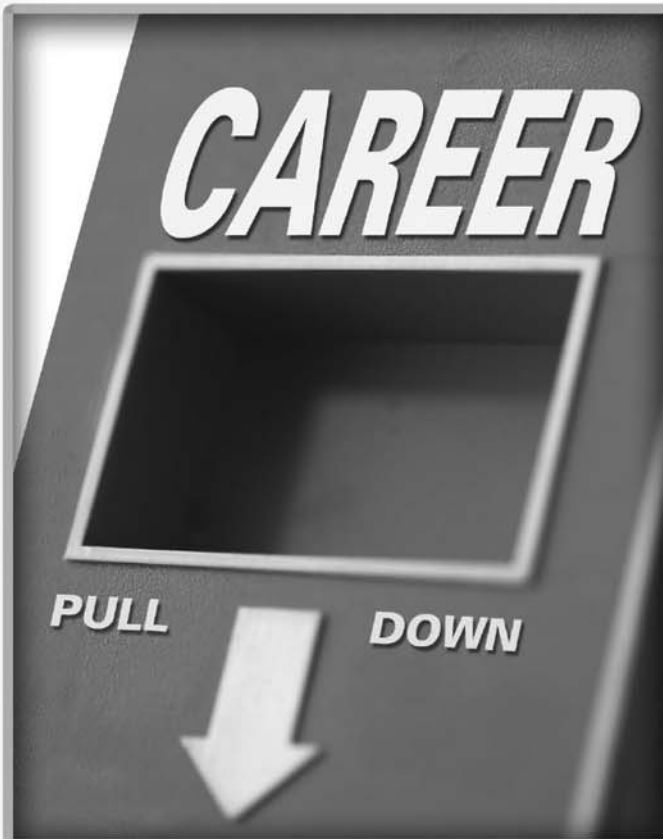
The CFSA celebrates its 35th anniversary this year. Changes have already been completed to the logo, website and now the CFSA News. In addition, we have a special dinner event planned in October to celebrate. We hope that all of you can join us.

If you have any technical session/dinner meeting topic ideas, articles or comments, we would love to hear from you. Over the next year, I look forward to meeting all of you at our various events.

A handwritten signature in cursive script that reads "J. O'Carroll".

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

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Janet O'Carroll

EDITOR'S note

Welcome to the new edition of the CFSA News! What better way to celebrate our 35th anniversary than to redesign the document that assists us in meeting our mandate to disseminate fire and life safety information. We are very excited about the change and hope that you enjoy the new format.

This edition of the CFSA News is packed with articles from the March dinner meeting on fire alarm design challenges in complex buildings and from the Annual Education Forum including Technical Changes to the Ontario Fire Code, Fire Protection of Steel Buildings, Flammability Standards for Consumer Products, the National Construction Codes and the 2006 scholarship winners. Articles on the remaining presentations from the Annual Education Forum will be included in the next edition.

In addition, included in this issue is a feature article on the Fire Protection of Life Safety Electrical Circuits in High-Rise Buildings...25 Years Later and articles on Summer Grilling Tips from NFPA, Amendments to the FPPA, Mattress and Futon Testing and a word from the founding President of the CFSA.

It is amazing how fast 4 years has gone by, since I started as Editor of the CFSA News. I have thoroughly enjoyed this role and I look forward to participating in future editions. Thank you for your support of these years. A new Editor will be selected, who will release the September edition.

As always, we look forward to any articles, suggestions, comments or questions you might have. Please feel free to contact us via email: cfsa@taylorenterprises.com, phone: (416) 492-9417 or visit our website at www.canadianfiresafety.com.

A handwritten signature in cursive script that reads "J. O'Carroll".

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

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Fire Protection of Life Safety Electrical Circuits in High-Rise Buildings...25 Years Later

This article was provided by Rick Florio C.E.T., Manager, Canadian Commercial Wiring for Tyco Thermal Controls / Pyrotenax.

Codes and Standards have come a long way in Canada and today the safety bar is higher than ever. The engineering community, in conjunction with the AHJs (Authorities Having Jurisdiction), has worked to decipher new code requirements and to introduce engineered solutions which meet those requirements. Critical systems in high rise buildings (“life safety systems”) must function during a fire. That is why wiring integrity during a fire is paramount not only to the fire service but also to the building occupants. Fire fighters need to be able to use designated elevators to suppress the fire and both firefighters and building occupants must rely on voice communication and fire alarm circuits to be informed of fire

conditions. Other life safety circuits such as emergency generators, fire pumps and smoke management systems are equally crucial.

There are several methods of offering fire protection to the electrical conductors for life safety electrical circuits. Mineral insulated (MI) 2-hour fire rated cable (listed by ULC & UL since 1980) is inherently fire resistant due to its totally inorganic construction and is widely viewed as a superior cable system for fire rated applications. In recent years, technology has made it possible for polymer insulated cables to pass the 2-hour UL/ULC fire test and be part of the solution.

Figure 1 depicts the life safety circuits

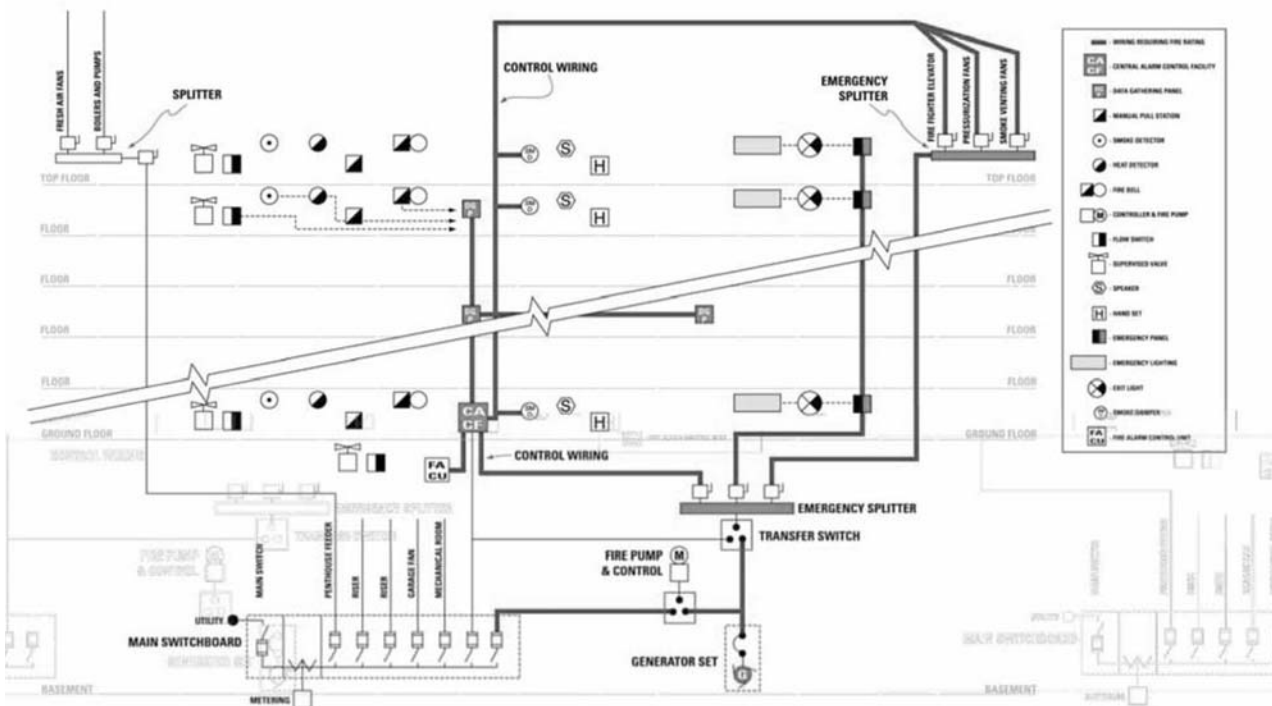
(drawn in red) that require electrical conductors to be fire protected in high-rise building, and is followed by a list of the applications that are served by these circuits.

- Emergency Power Supply
- Firefighter’s Elevator
- Fire Pumps
- Fire Alarm
- Voice Communication & Fire fighter’s Handsets
- Emergency Power for Lighting
- Pressurization Fans & Smoke Dampers
- Smoke Venting Fans

Standards

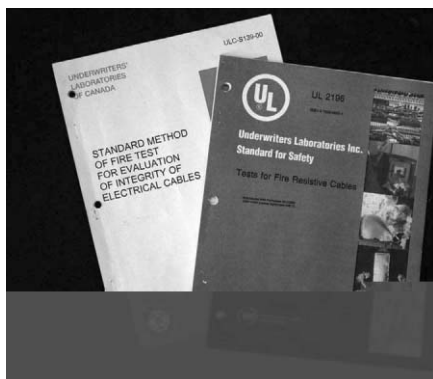
Electrical cables listed by the ULC S 139 / UL 2196 “Standard Method of Fire Test

Figure 1 Life safety circuits



for Evaluation of Integrity of Electrical Cables” (Figure 2) serve as the specifier’s ideal choice for the above circuits.

Figure 2



“The intent of the fire test is to determine the integrity of electrical cables which are evaluated for their ability to maintain ‘circuit integrity’ at a specified voltage potential relative to ground and other conductors. Leakage current per unit length of cable shall also be quantified. Cables are exposed to the standard time and temperature fire curve ASTM E-119 (Figure 3) and then the application of a hose stream. During the fire test, cables shall be continuously energized at a minimum voltage or at their rated voltage while measurements are made of insulation resistance. Following the fire test, the assembly is subjected to a hose stream test after which the cable shall be tested for ‘circuit integrity’. Insulation resistance measurements shall also be taken to quantify leakage current.”

Codes

The National Building Code (NBC) 1995 requires fire protection of conductors when combustible materials are present within a service room / space (Figure 4).

Figure 3

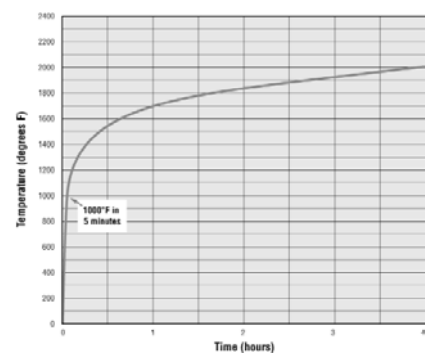


Figure 4
2-hour fire separation

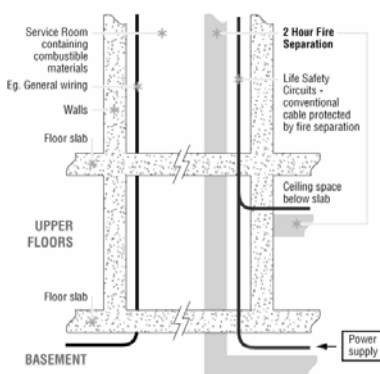


Figure 5
2-hour fire rated cable

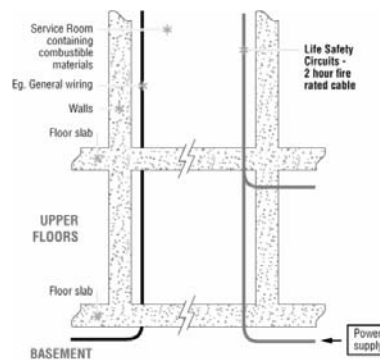


Figure 6

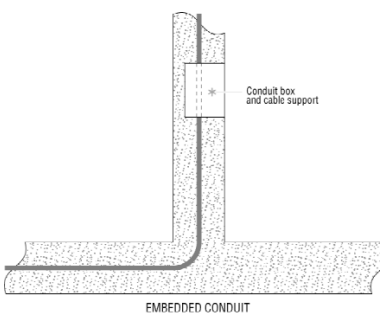


Figure 7
2-hour rated assembly horizontal metal duct enclosure (fire tested both sides)

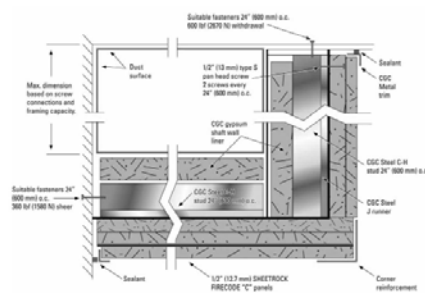


Figure 8
MI Cable in a shaft

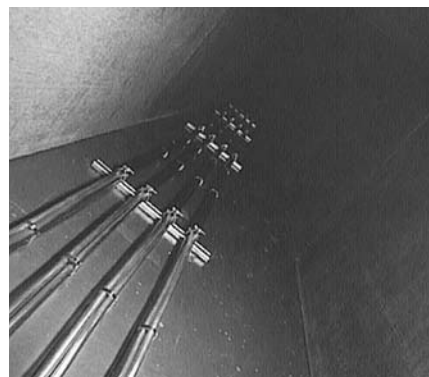
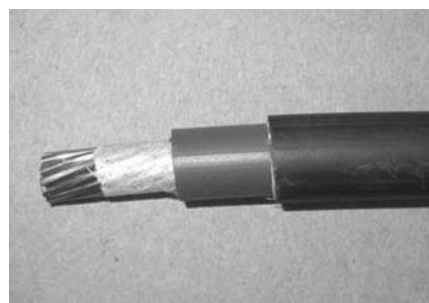


Figure 9
RHW cable, for installation in conduit



The recommendation is to provide a 1-hour or 2-hour fire separation for the electrical conductors and the combustible materials, or utilize 2-hour listed cables (see Figure 5). The actual excerpt is 3.2.6.9(1) and it states “...not less than 1 hour”; yet under sections 3.2.7.4, 3.2.7.8, 3.2.7.9, it refers to a requirement for emergency power of 2 hours. This “grey area” is open to interpretation by the design engineer. Should he/she provide 1-hour fire protection for the electrical conductors, when required also to provide emergency power for 2 hours? The recommended solution is to specify a listed 2-hour rated cable system or a 2-hour fire separation. Although most of the provinces have adopted the NBC, there are a few exceptions. The Ontario Building Code 1997 has clarified “fire protection of conductors” under 3.2.6.14(1) wherein it references the actual time requirement (2 hours) under section 3.2.7. The City of Vancouver, under Appendix “A”, actually defines the appropriate methods; ULC 2-hour listed cable systems or construction methods protecting conventional cables for 2 hours.

Design Engineering Consultants / Specifiers

The majority of consulting firms in Canada are well aware of “fire protection of electrical conductors for life safety circuits” and usually specify 2-hour ULC listed cables for new construction or retrofit projects. However, not all do so; some of the firms that specialize in new high-rise residential construction have a tendency to allow “construction methods” as alternatives to specified listed cables (Figure 6 & 7).

(I) 2-hour Listed Cables

- Mineral insulated (MI) cable (Figure 8) manufactured in Canada since 1949 and ULC listed in 1980 as a 2-hour fire rated cable.
- Listed polymer insulated cable (Figure 9) in steel conduit, recently introduced in the Canadian market.

(II) Construction Methods

- Conduit encased in concrete (protection of conventional wiring)

These are not listed systems! 2 inches of concrete is considered adequate for 1-hour fire resistance; approximately 4 inches of concrete is required to protect conductors for 2 hours.

- Very cost effective if proper coverage can be achieved throughout entire circuit.

However:

- It is easier to fire rate conduits up to 1 1/2 inches; harder to guarantee 2 to 4 inches.
- Non fire-rated junction and pull boxes compromise the system. (Figure 6)
- Gypsum enclosures (Figure 7)
- Provide protection of conventional wiring; as long as similar methods for providing fire protection of metal ducts are utilized
- Difficult to build
- “Trade sensitive” (subject to poor workmanship.)
- Wear and tear, as well as subsequent work carried out in the vicinity, can easily compromise the system.
- Require extensive amounts of space

Note: Neither of the above is tested or listed as a method of fire protecting conventional wiring for 2 hours.

AHJs (Authorities Having Jurisdiction)

Over the past 25 years, this group of professionals has become increasingly aware of the importance of requiring fire protection for electrical conductors. Building Departments, Fire Departments, Plans Examiners and Inspection personnel have all worked to ensure that the fire protection of electrical conductors is addressed in all designs submitted for building permits and that contractors are required to comply before a building is occupied. In some municipalities, the Building & Fire Departments even work together to review plans and perform inspections.

Electrical Contractors

It is evident that the installers of 2-hour listed electrical cable systems have also come a long way in making sure that the systems specified are installed in accordance with manufacturer’s recommendations. Prudent contractors take advantage of field service assistance offered by manufacturers on specific installation techniques for their systems, which if implemented will save additional labor units. Contractors also have developed innovative installation procedures on their own to ease the sometimes difficult installation of fire rated cables, thereby greatly lowering the number of installation labor units.

Conclusion

The subject of “fire protection” has come a long way in regards to fire protection of electrical life safety circuits as well as to other building systems (e.g. fire alarm systems, sprinklers, smoke management technologies, fire separations, flame spread of construction materials, etc). High-rise buildings in Canada have become far more sophisticated in recent years. The credit for this is attributed to advances in technology and the evolution of codes and standards. Whether for commercial buildings, health facilities, airports, etc., the systems specified by architects and engineers are increasingly complex in regards to fire protection. In today’s world, it is and will remain a serious responsibility to design and synchronize critical life safety systems that will function when needed.

As history reveals, major fires and increased casualties typically occur when there is more than one accident or system failure. The poor design and/or implementation of fire safety building plans, insufficiently trained personnel on fire alarm and voice evacuation systems, and a lack of proper system maintenance are all examples of factors which can lead to system failure.

It is important that manufacturers, AHJs, specifiers and contractors continue to work together in order to ensure that our high-rise buildings are safe and that all who live or work in them are protected from possible fire related disaster.

CFSA 35 YEARS AGO

Did you know:

The cost of a CFSA membership in 1971 was \$17.00 including the \$5.00 registration fee and \$12.00 annual membership fee. Dinner meetings cost \$6.00 per person.

At the November 2, 1972 “Fire/Smoke Seminar for High-rise Buildings”, 510 delegates attended and over 250 registrants could not be accepted due to the seating capacity limitations.

NFPA Suggests Summer Grilling Tips to Avoid Fires



With warmer and longer days fast approaching, outdoor grilling is often a popular choice for cooking. The National Fire Protection Association (NFPA) today urged caution when grilling to ensure safe cookouts. According to NFPA gas-fueled and charcoal grills cause an average of 900 home structure fires and 3,500 home outdoor fires each year. Gas grills have a higher fire risk than charcoal grills. Leaks and breaks in the gas cylinder or hose are the leading cause, accounting for nearly half of gas grill fires. Placing combustibles too close to heat, and leaving cooking unattended, are the two leading causes for charcoal grill home structure fires. Half of all gas grill and charcoal grill home structure fires begin on an exterior balcony or unenclosed porch, so it is important to grill not just outside your home but well away from your home.

NFPA suggests some safety tips for outdoor grilling:

- Gas 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 po-

tential asphyxiation.

- 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.
- Keep children and pets away from the grill area: declare a three-foot “safe zone” around the grill.
- Put out several long-handled grilling tools to give the chef plenty of clearance from heat and flames when flipping burgers.
- Periodically remove grease or fat buildup in trays below grill so it cannot be ignited by a hot grill.

Charcoal Grills

- Purchase the proper starter fluid and store the can out of reach of children, and away from heat sources.
- Never add charcoal starter fluid when coals or kindling have already been ignited, and never use any flammable or combustible liquid other than charcoal starter fluid to get the fire going.

Gas Grills

Check the gas cylinder hose for leaks before using it for the first time each year. A light soap and water solution applied to the hose will quickly reveal escaping propane by releasing bubbles. If you determine your grill has a gas leak, by smell or the soapy bubble test, and there is no flame:

Turn off the gas tank and grill

If the leak stops, get the grill serviced by a professional before using it again.

If the leak does not stop, call the fire department.

- If you smell gas while cooking, immediately get away from the grill and call the fire department. Do not attempt to move the grill.
- All gas cylinders manufactured after April 2002 must have overfill protection devices (OPD). OPDs shut off the flow of gas 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.
- Use only equipment bearing the mark of an independent testing laboratory. Follow the manufacturers’ instructions on how to set up the grill and maintain it.
- Never store propane gas cylinders in buildings or garages. If you store a gas grill inside during the winter, disconnect the cylinder and leave it outside.

NFPA has been a worldwide leader in providing fire, electrical, building, and life safety to the public since 1896. The mission of the international nonprofit organization is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training and education. Visit NFPA’s Web site at www.nfpa.org.

Fire Alarm Design Challenges in Complex Buildings

This article was provided by Stacey Lalonde a student in the Fire Protection Engineering Technology program at Seneca College's School of Fire Protection.



On March 22nd the CFSA dinner meeting was lead by speaker Fred Leber, C.E.O. of LEBER/RUBES INC.; Canada's largest and most diverse fire protection engineering firm. Mr. Leber provided an excellent presentation on the various issues that occur during the process of designing fire alarm systems for complex buildings such as the Eaton's Center, Toronto Dominion Center and Hudson Bay Center. He discussed the stages of the design process, the obstacles that may be encountered during the process and a few solutions to help overcome these obstacles.

The Design Process

There are four distinct stages to the design process of retrofitting a complex building:

- **Audit/Interview:** This is the physical audit that contains the documentation of the existing building to determine implementation methods and constraints.
- **Detailed Design:** The detailed design includes the specifications and drawings (new/existing).
- **Project Management:** Includes the review of specifications with the contractor, contract management, contractor control, site conditions and issue resolution.
- **Audit/Interview: Commissioning:** Witness verification and spot testing are part of the commissioning stage that will ensure operation as a "system".

Challenges & Solutions During The Design Process

Throughout each of the stages in the design process there are a few challenges that one might come across: the client, the building itself, the operators, the occupants, the fire service, the codes and standards, ensuring system survivability and appropriate alarm operations.

The client can be one of the toughest challenges. The reason they may be the toughest is because they have a business to run and they have objectives. The client may often change their mind due to priorities and budget.

The building itself may be a challenge if the existing building documentation (such as wire routing, auxiliary connection, etc.)

is inaccurate, or not up to date. Equipment such as elevators, smoke control systems, HVAC systems, commercial cooking equipment, etc; may also be an obstacle to overcome in the design process.

The operators can be a challenge to obtain information from. Many people are unaware of some of the fire protection equipment in their own building (such as smoke control systems), which may cause the designer to require additional time to collect all necessary data prior to continuing with the design process.

The occupants are a challenge since the original system must continue to perform during retrofit. False alarms must be limited as occupants are less likely to evacuate the building during a real fire situation, the more often they hear a false alarm. One of the hardest parts about designing a fire alarm system in a complex building filled with occupants is keeping the building open for business.

The fire service may also be an obstacle since they require a clear and concise annunciation/control and access to information on building services.

The Codes and Standards that are required to be followed can also become an obstacle. The codes required to be used are: The National Building Code of Canada (NBCC), the National Fire Code of Canada (NFCC) and the Ontario Building Code 1997 (OBC). The standards required to be followed are: CAN/ULC-S524-M (Installation of Fire Alarm Systems), CAN/ULC-S527-M (Fire Alarm Control Units), CAN/ULC-S5237-M (Verification of Fire Alarm Systems) and NFPA 13, "Installation of Sprinkler Systems". The challenge with the codes and standards is that they do not allow what is desired to be done during retrofit and the codes are often changing. Another problem with following the codes and standards is that the Building Code never covers every building type. An example of this is that the Building Code has the same fire alarm requirements for high/tall buildings regardless of specific height, occupant load and complexity (i.e. a 15 storey office building versus a 72 storey office building). The minimum is

generally considered acceptable but following the code exactly may lead to code driven designs that are inadequate and often inappropriate for the specific building. An appropriate design uses the fire alarm requirements in the Building Code as a starting point in the design process.

System Survivability is the largest concern in complex buildings with high occupant loads. Under the Building Code, typical networks for fire alarm system architecture are normally a single large network, even if multiple buildings are involved. Therefore, a fault in a common line can potentially affect all buildings. When working on a retrofit project, this is vital in terms of design and testing. During the duration of an alarm, the life safety systems in such complex buildings must continue to provide effective operation. The duration of the alarms must take into account the time that it would take to evacuate the entire building, (this could be anywhere from 10 minutes to 2 hours). System survivability can be accomplished by running wiring via two 1 hour shafts separated by floor area, running horizontal wire sections on different floors and using the rating of the floor slab to ensure that a single event will not affect both wire paths running the primary and secondary and also by providing a secondary annunciation and control at a location remote from the primary location.

In addition to fire detection, the fire alarm system also provide two way communication for emergency response personnel and provide control of building systems, including: air handling systems, smoke control systems and management, release of electromagnetic locked doors, recall elevators for primary and alternate floors, release of door hold open devices and the interface to other building systems such as pre-action sprinkler systems, gaseous extinguishing systems (i.e. Inergen, FM200, etc.), fire shutters, etc. In complex building structures with interconnected building components it is impractical to activate all audible signals at the same time. The code defines ALERT SIGNAL as "advise designated persons" and an ALARM SIGNAL as "a signal, throughout building/zone(s) to advise occupants". When designing a fire alarm system in complex

buildings it is important to only activate signals where they will alert, relocate or evacuate those in potential danger. It would be impractical to evacuate everyone and it will only induce stair congestion.

Key Ideas

It is important to eliminate or reduce the extent of the risk of introducing new problems each time the software for the fire alarm system is changed or upgraded; software changes must be validated and verified. Systems should be structured system so that failures or errors will affect only smaller more manageable areas of the building. It is also important to complete changes and additions quickly and cost effectively with minimal disruption to the building's fire protection systems. Flexibility should be provided to allow system testing to be carried out one section or building at a time without disrupting the fire protection in other buildings or areas.

As the fire protection engineering industry matures new tools and software to assist with the design process are becoming available. One of these new tools is Fire Modeling Technology.

Conclusions

There are many obstacles that might occur when designing fire alarm systems for complex buildings. The best way to overcome these obstacles is to utilize a fire system architecture, software and hardware to achieve survivability of critical system functions and operation in the event of failures. Also, the SFPE Engineering Guide or a similar disciplined approach to a design should always be used.

Reliance on a minimum Code-required design only satisfies a legal requirement (at the time of design). Courts could decide that additional provisions should have been provided above the minimum requirements. Therefore, minimum Code-required design should not be relied on because it will not serve the interests of the fire protection and life safety in a building.

The CFSA would like to thank Fred Leber for his knowledgeable and informative presentation.

A Word From CFSA's Founding President

The following article is an excerpt from the December 1996 edition (Volume 8, Issue 3) CFSA Newsletter.

“To those who are truly interested in reducing Canada’s unacceptable losses in lives, injuries and property, due to fire related causes, let me tell you a short story...”

Just before Christmas 1949, I a D.V.A. (Department of Veteran’s Affairs) student in Chemical Engineering at the University of Toronto, was hitch hiking on Avenue Road below St. Clair Avenue, going to the exams at SKULE with only a slide rule in my hand.

Suddenly a Rolls Royce limousine pulled up to the curb, and I was invited into the rear compartment by the uniformed driver. An elderly gentleman moved over in the back seat and wished me a “good morning”. He asked me where I was going, and guessed that I was in Engineering. He asked me what were my plans on graduating. I explained that jobs were scarce, and that I did not have any immediate prospects. He suggested that I contact the manager of the Sprinklered Risk Division of the Canadian Underwriters Association (C.U.A.). I tried to show some interest in the gentleman and asked him what was his line of work. He said he was the President of a group of insurance companies.

On contacting the Canadian Underwriters Association, I was granted an interview. The manager was quite busy. He said he only had five minutes. Half an hour later he was getting more interested in me and I was really sold on his outline of my prospects with the C.U.A. The interview ended abruptly when he learned that I was 33 years old. Yes, I was too old at 33!!! C.U.A.’s policy was to hire people before they were 30. He suggested that I try at Factory Mutual Engineering Division.

This was a stroke of good luck, although it was not readily apparent at the time. In fact Dean McLaughlin said, “That’s a corking find starting salary,” when advised that I had been hired at \$3,400/annum.

I was initially slated for two years in Boston but they rushed three of us through the courses and we were sent back to Canada in a year. After a year or working in Ontario and Quebec, I was made District Engineer for South Western Ontario.

Our Data Sheets in 1950 were rather skimpy and could be carried in our suit pocket. Now they are over twelve 2” volumes.

The most important things I learned from the courses and experienced supervisory inspectors were the two rules of thumb for proper fire protection. Sprinkler protection is needed (1) under combustible construction and (2) over combustible occupancy.

Since fire sprinklers were invented in 1874, the experienced FM inspectors have been recommending sprinklers where needed. The Insurance Company representatives usually ex-inspectors and engineers and having Vice-Presidential status, have been backing up the recommendations. It is impossible to drop a sprinkler recommendation unless they are installed and are ready for an emergency. The assured is given some leeway but eventually is faced with the alternative of putting in sprinklers or getting his insurance elsewhere.

For statistical purposes losses are classified by occupancy. Most of your hazardous processes or conditions, such as materials, products and storage are in the Industrial Category. The loss of life and the loss of

property in the Industrial Category usually have lower ratings, if not the lowest of any category; due primarily to the protection afforded by sprinklers.

Residential losses are the largest. Loss of life figures usually about 85%, Residential. (Incidentally, FM does not issue residential buildings unless they are closely connected to the plant).

In the 75-year history of keeping loss reports and their statistics, the National Fire Protection Association (NFPA) has had zero fires resulting in multiple deaths, where automatic sprinkler protection has been adequately provided (i.e. good design, no freezing, proper supervision of valves and maintenance).

Since 1950, I have had a keen interest in the record of automatic sprinkler fire protection. Usually the losses are in the \$1,000 to \$15,000 range, with a rare \$20,000 loss in sprinkler protected structures, while in unsprinklered or defective sprinkler systems the losses usually start at \$100,000 and zoom to 50 million US dollars.

It is my considered opinion that the life safety problem in the Residential Category which invariably produces the largest percentage of fire related deaths can be solved by the encouragement by Municipal Authorities like the City of Vancouver in enforcing the installation of automatic fire protection sprinkler systems in all new construction of homes, including single family dwellings and multiple dwellings such as apartments. Sprinklers are the only answer to high-rise buildings of all types. One way the municipalities can encourage the installation of sprinkler systems is not to insist on the inclusion of a water meter in the system. If the system is properly designed and installed, there is

very little need for a meter to be included. First of all, if the taxpayer and voter are trusted, 98% will keep that trust. It seems rather ridiculous to force the 98% to purchase and install a meter that cost about \$3000, or more installed, and which will register a negligible amount of water used on the periodic testing of the valves in the system. The meters add a comparatively large amount of friction loss to the system. It makes my Scottish blood boil to hear of a Municipal Authority insisting on the installation of useless equipment, and not trusting the 98% of taxpayers who are honest.

Each year I read the statistical reports produced by the National Fire Protection Association. Canada and the United States invariably vie for first place in the ratings of loss of life due to fire related causes. There was a slight drop in the number with the introduction of smoke detectors. (Incidentally, I have 19 installed in my home). We have yet to put out a fire with a smoke detector. The sprinkler system not only detects but also puts out a fire. Both types of detectors, smoke and sprinklers used in conjunction with each other can and will reduce our fire statistics significantly.

It is now up to the municipalities, in conjunction with the Provincial and Federal authorities to accept the fact that our unacceptable statistics on fire loss can and will be reduced by installing and maintaining automatic fire protection sprinkler systems.

The sprinkler industry has improved, and is continuing to improve the sprinkler heads to render them responsive to the changing fire conditions such as attic sprinkler heads. They are striving to keep the costs of a sprinkler system reasonable. Mass acceptance by municipalities will further aid in reducing costs.

Stanley T. Murray, B.A.Sc.
Life Member CFSA
Life Member NFPA
Member for Life SFPE

The Fire Sciences Library & Audio-Visual Resource Centre, OFM



If you are interested in accessing information on fire safety, fire prevention, firefighter training, disaster management, emergency planning, building and engineering design or current legislation – a good place to start is The Fire Sciences Library & Audio-Visual Resource Centre at the Office of the Fire Marshal.

The library has over 9,000+ books, standards, statute law, reports ; 1,600+ audio-visual resources and 80+ journals all dedicated to the fire sciences field.

Reference Services

Library staff will help you locate information. We can search our online catalogue, online databases, CD-ROMs and the Internet for materials about a given subject. Popular requests include: fire prevention, disaster management, emergency planning, arson investigation, hazardous materials, engineering, legislation and case law.

Publications

The library produces two publications Library Ladder News, a quarterly newsletter featuring fire related research with new books, videos and websites. The second publication – What's New, is a monthly table of content service for our 80+ journals and new book and video material.

Internet

Further information on the library and other useful links may be found on our Internet site www.ofm.gov.on.ca click on Resources.

Borrowing

Books and videos are loaned for a three-week period and items may be renewed. Reference, legal materials, standards and journals must be used in-house. The library will courier material to OFM staff and Fire/EMS Departments outside of head office. Hours: Monday – Friday 8:30 am – 4:15 pm. Contact us via phone or email Library 416-325-3235/3236; Audio-Visual 416-325-3121; firesciences.information@ofm.ca

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Over the last 35 years the CFSA has been lead by some of the most prominent leaders in the fire protection industry. Each president, diverse in their area of expertise has brought their ideas, goals, vision and passion for the industry to the association. Each has devoted their time and expertise in order to disseminate information to the fire protection industry.

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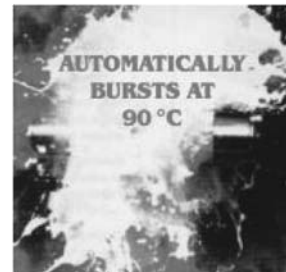
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Technical Changes to the Ontario Fire Code

This article was provided by Jason Scovell, a Fire Prevention Officer for the Markham Fire and Emergency Services.

At the CFSA Annual Technical Seminar on April 19, 2006, Krystyna Paterson, P.Eng., Fire Safety Standards Manager at the Office of the Fire Marshal of Ontario (OFM), presented a summary of technical changes to the new edition of the Ontario Fire Code (OFC).

The focus of her presentation centered on three main technical changes that have taken effect since July 2005. The first change was filed on July 29, 2005 and involved a consolidation of several items for the *Developmental Services Act*, known as O.Reg.451/05. Some of the changes included additional record keeping for inspections, the requirement for a *Fire safety plan* under Section 2.8, and monthly fire drills.

The revision also adopted CAN/CSA-Z305.12 "Guide for the Safe Storage, Handling, and Use of Portable Oxygen Systems in Home, Domiciliary, and Healthcare Settings" in a new Section 2.15 to be applicable to all residential and health care settings.

The second revision was known as *O.Reg. 650/05* and was filed on December 12, 2005 and came into force on March 1, 2006. This revision created the requirement for at least one working smoke alarm on every storey of a dwelling unit.

The third revision is known as the *Law Enforcement and Forfeited Property Management Statute Law Amendment Act, 2005*. It received royal assent on December 15, 2005 and effectively doubled all fines on conviction for *Ontario Fire Code* offences.

In addition to these three most recent revisions, there are a number of new amendments in various stages of development. For instance, requirements for Hotel fire

safety are being developed for inclusion in the OFC. The proposal will fully consolidate technical requirements from the *Hotel Fire Safety Act and Regulation 640* into the *Fire Code*, and delete the current reference. The new wording will include maintenance requirements, new retrofit requirements for existing hotels, a requirement for the owner to carry out a building audit within one year, a fixed 5-year phased-in compliance schedule for new requirements under Retrofit and continuing compliance for existing requirements.

The new Section 9.9 will not apply to hotels constructed in accordance with the *Building Code* after July 1, 1993 and will not apply to previously unlicensed 'hotels' (e.g. apartment hotels) regulated under existing residential retrofit provisions. These new regulations are in the final stages of development and will be deployed in the near future.

Another new development will be the advent of objective-based codes to be implemented some time in 2006. The new code format will use concepts such as "objectives" and "functional statements" in relation to "acceptable solutions" and "alternative solutions". Specific objectives covered by the *Fire Code* will include safety, health and fire protection such that there will be a relationship to the prevention, control or consequence of fire. Options for compliance will include complying with acceptable solutions unless an alternative solution has been submitted, approved and implemented. Alternative solutions must bear the signature and seal of a professional engineer or architect and alternative solution records will be required to be retained. Simultaneously, the existing appeal process will continue to apply and the existing enforcement mechanisms will also continue to apply.

Upon publication of the new objective-based fire code, some 200 technical changes will also appear. Examples of these are as follows:

- Testing of interconnected smoke alarm systems required and to be completed by qualified persons (except in dwelling units).
- Fire safety provisions for outdoor public assembly activities (egress from confined spaces and control of combustibles and ignition sources).
- Central station monitoring of fire alarm systems (connection retained by owner and operator to comply with standard).
- Updating of a number of referenced standards.
- Improved fire safety for floor finishing operations (applicable to all buildings and not permitted in below grade areas using flammable liquids).

As the code development process continues, it should be noted that implementing code amendments is a lengthy and consultative process. Clearly the Ontario Fire Code is a dynamic document, which is undergoing continual improvement to the language as compliance issues are identified. The OFM will continue to adopt new technical requirements where gaps are identified through fire losses and will continue to improve the regulatory environment for the benefit and safety of all Ontario's citizens.

The CFSA would like to thank Krystyna Paterson for an excellent presentation on the review of recent changes to the OFC as well as upcoming changes that can be expected.

CFSA Scholarship Awards

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 Peter Stainsby Award (\$1000.00)
Heather D. Bourke, Seneca College



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 (\$850.00)
Anh K. Trinh, Seneca College



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

Leber/Rubes Inc. Award (\$850.00)
Brandon E. Spearing, Seneca College



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

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Canadian Automatic Sprinkler Association Award (\$500.00)
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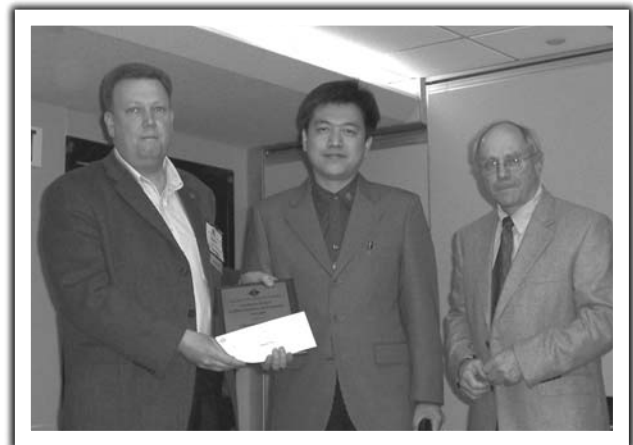
Presented to a TOP year 2 student of a 3 year full-time Fire Protection Technology Course, with exceptional academic skills in Sprinkler Technology and an overall proficiency of 3.25/4.00.

Canadian Fire Alarm Association Award (\$500.00)
Gregory S. Shepherd, Seneca College



Presented to a Top year 2 student of a 3 year full-time Fire Alarm System Technology Course, with exceptional academic skills in Fire Alarm Technology and an overall proficiency of 3.25/4.00.

Underwriters' Laboratories of Canada Award (\$500.00)
Chunxuan Dong, Seneca College



Presented to a Top year 2 student of a 3 year full-time Fire Protection Technology Course, with exceptional academic skills in Codes and Standards and an overall proficiency of 3.25/4.00.

The CFSA would like to thank our major sponsorship contributors and individual and corporate sponsors for their continued support.

Fire Protection of Steel Buildings

This article was provided by Jason Scovell, a Fire Prevention Officer for the Markham Fire and Emergency Services.



George Frater, P.Eng., Codes and Standards Engineer for the Canadian Steel Construction Council presented a discussion of how steel components of a building are protected in accordance with the fire safety requirements of the Ontario Building Code (OBC).

In general there are four methods of fire protection design for steel. These are “direct applied”, “membrane systems”, “water systems”, and “concrete systems”.

Direct Applied

Using the “direct applied” method, the purpose is to insulate the steel member against heat. Coatings can be sprayed on or intumescent paint can be used (paint that expands when heated).

Intumescent paints have two key components: a resin binder and a mixture of chemicals that decompose and release a gas when heated. During a fire, the ma-

terial melts. A gas-producing reaction is triggered and the release of gas causes the resin melt to foam, developing an insulating layer. This then produces a thick char, which insulates the steel from fire. Intumescent paints may typically expand approximately 15 times to 30 times their initial thickness during a standard fire test.

Membrane System

Using the “membrane system” method, the purpose is to create a thermal barrier. Gypsum drywall is typically used to enclose the steel component and create a protective barrier. This method is one of the most common means of protecting structural steel members from fire.

The material used protects the structure from direct fire exposure and also has low heat conduction properties such that the time required for heat to transfer to the structural element is increased. Various

materials, including concrete, brick, tile and asbestos have been used because they perform well at elevated temperatures. Asbestos has also been used in the past in this method but due to health hazards asbestos has been banned. Gypsum is a very good insulator. It contains a high percentage of water that is chemically combined with the calcium sulphate base and a large amount of energy is required to dehydrate and evaporate this water. This makes gypsum a good and relatively inexpensive fire protection material.

Water System

Using the “water system” method, the concept is to create a cooling effect. Hollow steel structural columns are provided with internal cooling. Typically water reservoir tanks are installed on the roof of the building to replenish the quantities lost due to natural evaporation.

Many structural elements can be filled

with water to increase the heat capacity of the structure and thus decrease the temperature of the steel. Water can also be circulated through the structure, either mechanically or by the natural movement of the hot water being replaced by the cooler water, to remove the heat from the local heat source, thus limiting the chance of local boiling. Turning the water into steam, which may then rise into tanks to cool and condense, can also absorb the heat energy. In the application of water-cooling techniques, the hollow structural members are either permanently filled or filled upon detection of a fire. Issues related to freezing, water-filling times and corrosion need to be considered. Durability of the steel is important, and can be enhanced by corrosion inhibitors and/or use of stainless steel pipes.

Concrete system

Using the “concrete system” method, typically masonry blocks or poured concrete are used to enshroud the steel member. Concrete is a good thermal insulator, as such it delays heat transmission to adjacent structural elements. Increasing the thickness of the concrete increases the time required for heat to transfer to the steel. Increased use of the “direct applied” approach has caused a decrease in the use of concrete encasement, concrete block work, brick, masonry, and tile encasement. Depending on the thickness of the concrete, reinforcing may be necessary. Reference can be made to the OBC’s Supplementary Guidelines for an equation that dictates the amount of concrete that must be applied to provide a certain level of protection.

Each of the described methods is subject to rigorous testing when specimens are submitted to a certification laboratory such as Underwriters Laboratories of Canada (ULC). Test criteria are established and published in ULC national standards and where fire protection methods are successful they are published in a directory for future use and reference.

The CFSA would like to thank George Frater, P.Eng. for his knowledgeable and well received presentation.

CFSA Retiring Board Members

On April 19, 2006, three dedicated and hardworking individuals that have helped shape the Canadian Fire Safety Association during their tenure on the Board of Directors have retired. These individuals include:

Dave Johnson,
Randal Brown and Associates,
Rick Florio,
Pyrotenax Cables,
Rick Simpson,
Toronto Fire Services.

We sincerely appreciate their time and dedication to the board and wish each one of them all the best of luck in their future endeavors.



Left to right: Janet O'Carroll and Dave Johnson



Left to right: Janet O'Carroll and Rick Simpson



Left to right: Rick Florio and Janet O'Carroll

CFSA Life Time Membership Award

At this year's Annual Education Forum, **Jon Winton** of Leber/Rubes Inc. was provided with the prestigious CFSA Life Time Membership Award. This award is only presented to an individual who for an extended period of time, rendered outstanding service to the Association.

For over 15 years, Jon served in many capacities on the Board of Directors including, President, Secretary, Dinner Meeting Chair, Annual Education Forum Chair and participated on many other committees.



Left to right: Janet O'Carroll and Jon Winton

Flammability Standards for Consumer Products

Wendy McNally, a Product Safety Officer with the Federal Department of Health Canada, presented the topic of Flammability Standards for Consumer Products. Wendy discussed the Hazardous Products Act, including those items that are currently banned, those that are regulated and the testing requirements for regulated products, investigations into complaints and what Health Canada is currently working on.

Hazardous Products Act

Health Canada enforces the Hazardous Products Act, the purpose of which is to protect consumers from unreasonable risk related to chemical, flammable and mechanical hazards in consumer products.

The act is comprised of two main parts:

- Part I – banned items (40 items),
- Part II – regulated items (46 items).

There are also three main areas of emphasis; flammable, chemical or mechanical.

Items that have been banned in Part I include general consumer textiles (such as clothing, housewares, etc.) that exhibit a flame spread of 3.5 seconds or less (or for raised fibres, 4.0 seconds or less). Other banned items include bedding made of textile fibres that exhibit a flame spread of 7.0 seconds or less, as well as relight candles.

Regulated items (Part II) include such products as matches, carpets, tents, mattresses, cigarette lighters, children's sleepwear, consumer labeling and packaging, textiles, toys, smoke detectors, charcoal, and cellulose insulation.

Each of the regulated items is subject to minimum testing or flammability standard requirements, some of which are more stringent than others. For example, lighters require extensive testing; they are required to be child resistant and labeled, and must meet performance standard requirements. Such products as children's sleepwear (from 6 months to 14X only) that is loose fitting and made of 100% cotton, acrylic, acetate or blends thereof will not meet the flammability standards and are not permitted to be sold.

The regulations cover products that are new or second hand that are sold, distributed or given away.

Complaints Investigations

Health Canada will receive complaints regarding consumer products and will identify the problem and sample the product. The product will be tested to either reproduce the problem or confirm non-compliance (to the regulations). Products banned under Part I that are still being sold will be immediately removed from the market and traced back to the seller or distributor to ensure that they are aware that the products are banned.

Current Projects

Health Canada is currently working on proposed regulations for utility lighters, which are currently not addressed under the category of lighters. They are also proposing regulations that would see warning labels on candles and limit the amount of lead in metallic wicks.

The CFSA would like to thank Wendy McNally for her excellent presentation, which included examples of banned and regulated products and literature for attendees. If you would like to obtain more information on consumer product safety call 1-866-662-0666 or 416-973-1748.

The CFSA 2006 Annual Education Forum

In 2005 and 2006, our industry has witnessed and will continue to witness the evolution of the Building and Fire Codes at both the national and provincial levels; from prescriptive based documents to objective based documents. In addition to the format changes, hundreds of technical changes have occurred within these documents.

Accordingly, this year's annual education forum was dedicated to fostering a greater understanding of these changes.

Topics presented to CFSA members and guests included; "Technical Changes to the Ontario Fire Code", "Flammability Standards for Consumer Products", "Major Changes to the NFPA 101, Life Safety Code", "National Construction Codes", "Fire Protection of Steel Build-

ings", "Trends in the Evolution of Fire Test Standards" and "Technical Changes to the Ontario Building Code". The Education Forum was kicked off by our keynote speaker Doug Crawford, Deputy Fire Marshal for the Office of the Ontario Fire Marshal. Overviews 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 interesting and informative presentations, as well as for their time and dedication. We would also like to thank everyone who attended.

If there are any comments or suggestions regarding the 2006 Annual Education Forum, please submit them to cfsa@taylorenterprises.com.

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National Construction Codes

Philip Rizcallah, P.Eng., Technical Advisor and Coordinator of the Fire Safety Team at the Canadian Codes Centre at the Institute for Research and Construction, National Research Council of Canada presented highlights of the technical changes made to the 2005 National Building and Fire Codes.

Technical Changes to the National Building Code

Four main sections under Part 3, “Fire Protection, Occupant Safety and Accessibility” of the National Building Code were discussed regarding technical changes, including:

- 3.1 General (including combustibility, firestopping, raceways, firewalls and exposing building face),
- 3.2 Building Fire Safety (including fire alarm systems, sprinkler systems, emergency lighting, mezzanines and interconnected floor spaces),
- 3.3 Safety Within Floor Areas (public corridors),
- 3.4 Exits.

3.1 General

Nonmetallic Raceways – Larger nonmetallic raceways are permitted up to 175 mm in diameter from the 28 mm diameter that was permitted in 1995. There was no change in the size limit for penetrating separations nor was there a change in rating. (3.1.5.20.)

Firewalls – Firewalls permitted to have a fire resistance rating of not more than 2 hours are now permitted to be constructed of materials other than masonry or concrete. However, the assembly is required to be protected from damage that would compromise the integrity of the assembly. (3.1.10.2.(3))

Fire Stopping in Walls – Semi-rigid fibre insulation board is permitted to be used to block the vertical space in a double stud wall assembly, in buildings permitted to be of non-combustible construction. (3.1.11.7.(7))

3.2 Building Fire Safety

Area of Exposing Building Face – Rating of fire compartments varied based on subsection 3.2.2 in the 1995 edition, which has now been standardized to 45 minutes in the 2005 edition. (3.2.3.2.)

Manual Pull Stations – Manual pull stations for fire alarm systems are now required to be installed adjacent to every exit rather than every required exit. (3.2.4.16.(1))

Audibility of Fire Alarm Signalling – Clarification has been provided, requiring the sound pattern of fire alarm signals to conform to the temporal pattern. (3.2.4.18.(2))

Signal Circuits in Dwelling Units and Residential Occupancies – There are three options that can be used when wiring signal circuits in dwelling units and residential occupancies, including Class A wiring circuit, Class B wiring circuit (such that a single open circuit for either Class will not impair other devices) or a separate signal circuit for each suite. (3.2.4.18.(10))

Sprinklers in One and Two Family Dwellings – Where sprinkler systems are designed in accordance with NFPA 13D, “name of standard”, sprinklers are not required in small closets and bathrooms. (3.2.5.13.(6))

Combustible Sprinkler Piping – Protection of combustible sprinkler piping is not required if the piping is tested to ULC/ORD-C199P, “Combustible Piping for Sprinkler Systems”. (3.2.5.14.(5))

Mezzanines – Open mezzanines are not considered a storey if they occupy less than

or equal to 40% of the open area of the room in which they are located and the space above the mezzanine is open. The space located below the mezzanine is now permitted to be enclosed. (3.2.1.1.(3))

Enclosed space is now permitted on an open mezzanine level, which is required to be less than or equal to 10% of the open area of the room it is located in. (3.2.1.1.(7))

Superimposed mezzanines are not considered a storey (e.g. a catwalk is not considered an additional storey). (3.2.1.1.(6))

3.3 Safety Within Floor Areas

Public Corridor Fire Separation – A public corridor requiring a 1-hour fire separation in the 1995 edition has been reduced to a rating of not less than 45 minutes. In addition, no fire separation is required for a public corridor if the storey is sprinklered and the total travel distance to an exit is equal to or less than 45 m. (3.3.1.4.)

3.4 Exits

Mezzanine Egress – If two or more means of egress are required from a mezzanine level, at least half of the required means of egress must be at the mezzanine level and at least one means of egress from the mezzanine level may lead through the room. (3.4.2.2.(3))

Principal Entrances as Exits – At least one door at every principal entrance to a building is required to be designed as an exit. In addition, an exit sign and manual pull station is required. (3.4.2.6.)

Minimum Doorway Width – The minimum required doorway width has

changed from 790 mm to 800 mm for consistency with section 3.8 on barrier free design.

Technical Changes to the National Fire Code

Four main Parts under the National Fire Code (NFC) were discussed regarding technical changes including Part 2, “Fire Safety and Occupant Behaviour”, Part 3, “Storage and Segregation of Dangerous Goods”, Part 5, “Hazardous Processes and Operations” and Part 6, “Fire Protection Systems”.

Part 2 – Fire Safety and Occupant Behaviour

Fire Safety Devices – The inspection, testing and maintenance of fire safety devices such as ventilations, audible devices, leak detection, bonding and grounding, etc. is required to be completed in accordance with specific NFC requirements. Where fire safety devices are not specifically referenced, they are required to be maintained in accordance with the design requirements. (2.1.3.7.)

Abandoned Cables – Due to concerns regarding the quantity of abandoned cables in plenum spaces and the high combustible loading, cables are required to be removed from a plenum unless the plenum is permanently enclosed or unless their removal would disturb the structure or finish, or unless they could affect cables currently in use. (2.4.1.1.(5))

Fire Safety Planning – Appendix notes have been expanded to include the risk factors prevalent in mercantile occupancies including storage of dangerous goods, smoke obscuration, human behaviour and training of staff. (A-2.8.2.1.(1))

Part 3 – Storage and Segregation of Dangerous Goods

Sprinkler Clearances – Clearance between the top of storage and the ceiling shall now conform to design standards rather than a prescribed height. (3.2.2.3.(4))

Oxidizer Storage – The maximum exemption amount for Division 1 oxidizers

(packing groups I, II and II) is 250 kg or 250 L. (3.2.7.1.)

Minimum clearances for oxidizers of packing groups I and II are equal to or greater than 1 m to ordinary combustibles and equal to or greater than 2.4 m to other dangerous goods. (3.2.7.18.)

Propane Cylinders – The display of single-trip non-refillable cylinders in mercantile occupancies is required to conform to CAN/CGA-B1492, “Propane Storage and Handling Code”. The storage limits have been increased from 25 kg to 227 kg. (3.2.8.2.)

Storage of Ammonium Nitrate – Subsection 3.2.9. applies to storage in areas designated as Class 5.1 dangerous goods containing more than 1000 kg of high-density ammonium nitrate but does not apply to low-density ammonium nitrate. (3.2.9.)

Buildings storing ammonium nitrate are required to be classified as Group F2 occupancy, limited to one storey in height, meet ventilation requirements, designed with flooring of non-combustible material, provided with spatial separations that may exceed those of the NBC in sensitive areas, of non-reactive materials and not contain a basement level. (3.2.9.2.)

Part 5 – Hazardous Processes and Operations

Special Processes – Previously, spray painting operations, dipping and coating processes and special processes involving flammable and combustible liquids were referred to under three separate sections. They have now been amalgamated under “Special Processes Involving Flammable and Combustible Liquids and Materials”. (5.4.)

Spray Coating Processes – Now refers to NFPA 33, “Spray Application Using Flammable or Combustible Materials”. (5.4.5.2.)

Dipping and Coating Processes – Now refers to NFPA 34, “Dipping and Coating Processes Using Flammable or Combustible Liquids”. (5.4.6.2.)

Baking and Drying Processes – Now refers to NFPA 86, “Ovens and Furnaces”. (5.4.1.2.)

Construction and Demolition – Previously, construction and demolition were addressed in Part 8 of the NBC and 2.14 in the NFC, which have now been amalgamated under the NFC Section 5.6. (5.6.)

Part 6 - Fire Protection Systems

Water Based Fire Protection Systems – Previously, standpipe and hose, automatic sprinkler and water supply for fire protection systems were addressed separately in the Fire Code and have now been amalgamated into one. Inspection, testing and maintenance of water based fire protection systems is now regulated by the requirements defined in NFPA 25, “Inspection, Testing and Maintenance of Water-Based Fire Protection Systems”. (6.4.)

Smoke Alarms and Carbon Monoxide Detectors – Inspection, testing and maintenance of smoke alarms must conform to CAN/ULC-S552, “Maintenance and Testing of Smoke Alarms” and carbon monoxide detectors to manufacturers’ instructions. (6.7.1.1.)

The Canadian Codes Centre has identified a number of priorities to be reviewed in the 2005 cycle of the NBC and NFC including:

NBC

- Smoke alarm battery back-up
- Spatial separation between buildings of combustible construction
- Photoluminescent exit signs
- Fire alarm voice communication systems
- Security systems that affect egress

NFC

- Leak detection and monitoring of storage tanks and piping systems
- Reference to ORD's
- Technical differences within the National Codes
- Safety at construction and demolition sites
- Protection of foamed plastics

The CFSA would like to thank Philip Rizcallah for an excellent overview of the changes to the National Building and Fire Codes. For more information regarding the National Codes, visit www.national-codes.ca.



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Sherry Denesha

CFSA Event Coordinator – Mary Lou Murray

2175 Sheppard Avenue East, Suite 310

Toronto, Ontario M2J 1W8

(416) 492-9417

Fax: (416) 491-1670

E-mail: cfsa@taylorenterprises.com

2006 Scheduled Events

DINNER MEETINGS

September

TBA

TECHNICAL SESSIONS

October

TBA

35TH ANNIVERSARY GALA DINNER

October

TBA

OTHER EVENTS

JUNE 4 - 8

NFPA World Safety Conference & Exposition
Orlando, FL

JUNE 5 - 8

OMFPOA 50th Annual Symposium
Barrie, ON

JUNE 13

CFAA Annual Technical Seminar
Toronto, ON

JUNE 14 - 16

6th International Conference on Performance-Based Codes and Fire Safety Design Methods
Tokyo, Japan

JULY 18-20

NFPA's Americas Fire & Security Expo
Miami Beach, FL

OCTOBER 1 - 4

OBOA's 50th Annual Meeting and Training Sessions
Niagara Falls, ON

OCTOBER 8 - 14

Fire Prevention Week

visit
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for all the latest news and events, including online reservations for:
Dinner Meeting reservations, technical sessions and much more.

Welcome to the
following
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Michael Banks, Dupont

STUDENT

Luke Lilicrop,
Hamilton Fire Services

As of May 17, 2006

Mattress and Futon Testing

Underwriters' Laboratories of Canada (ULC) provides a comprehensive service plan to meet the needs of the manufacturers of mattresses and futons. Recently, ULC / UL established a new product category geared towards the testing of futon pads. Many cotton-batting manufacturers produce futon pads. Most requirements for mattress/futon pads are set by the state of California, USA. The new category covers mattresses and mattress pads intended for hotels, motels or other places of public accommodations, as well as for general public retail, according to the California Business and Profession Code, Division 8, Chapter 3 – Flammability Law. The products Classified under this category exhibit resistance to combustion when exposed to a smoldering cigarette. The components of the mattress or mattress pad (i.e., filling materials, upholstered fabric, etc.) are subjected to a smoldering cigarette, as well as an open burner.

Test Standards

- **CAL TB 106** – Federal Standard 16 CFR 1632 (FF4-72) California Administrative Code Title 4, Chapter 3, Section 1371: Requirements, Test Procedures and Apparatus for Testing the Resis-



tance of a Mattress or Mattress Pad to Combustion which may result from a Smoldering Cigarette –1986;

- **CAL TB 117** – Requirements, Test Procedures and Apparatus for Testing the Flame Retardance of Resilient Filling Materials Used in Upholstered Furniture - 2000;
- **CAL TB 603** – Requirements and Test Procedure for Resistance of a Residential Mattress/Box Spring set to a Large Open-Flame;
- Canadian Requirements (Standard S137) for mattresses and furnishings underdevelopment.

Applications

- Futon pads
- Mattresses
- Mattress and box springs

Correction Notices

The article "Amendments to the Ontario Fire Code Requires Smoke Alarms on Every Level of Home" from the Winter 2005 edition of the *CFSA News*, should have stated "storey" rather than "level" throughout the article. In addition, you may have noticed some confusion with the Volume and Issue numbers, as well as the seasonal identification for the last few editions of the *CFSA News*.

We apologize for any inconvenience that these discrepancies may have caused.

Please note that the *CFSA News* no longer uses Volume and Issue numbers and seasonal identification. All future editions will refer to the month in which the *CFSA News* is published.

Changes to Membership Benefits

As the way we do business evolves, so are the services and membership benefits offered by the CFSA. Since our mandate is to disseminate fire and life safety information and create a fire safety environment in Canada, we are constantly looking for new ways to improve what we do best.

Previous Benefits

Consistently, the following benefits have been offered to our membership over the years:

Benefit	Membership Category					
	Basic Corporate	Corporate Levels 1-4	Individual	Associate	Student	Lifetime/Honorary
Number of memberships in the category	3	3	1	1	1	1
Members rate for all events (i.e. technical sessions)	✓*	✓*	✓	✓	✓	✓
Four editions of the CFSA News (print)	✓	✓	✓	✓	✓	✓
Advertising space in the CFSA News	Fee	✓	Fee			
Recognition in the CFSA News	✓	✓	New members only			
Exhibit table at the Annual Education Forum		✓				

* Applies to all employees in the corporation.

New and Improved Benefits

Here is how our benefits have changed and improved (items highlighted are new or have changed):

Benefit	Membership Category					
	Basic Corporate	Corporate Levels 1-4	Individual	Associate	Student	Lifetime/Honorary
Number of memberships in the category	3	3	1	1	1	1
Members rate for all events (i.e. technical sessions)	✓*	✓*	✓	✓	✓	✓
Four editions of the CFSA News (print and electronic)	✓	✓	✓	✓	✓	✓
Advertising space in the CFSA News	Fee	✓	Fee			
Members advertising rates in the CFSA News	✓	✓	✓	✓	✓	✓
Recognition in the CFSA News	✓	✓	New members only			
Post Job opportunities in the CFSA News	Free	Free	\$50		N/A	N/A
Recognition on the CFSA website (including website link)	✓	✓	N/A			
Members Only section on the website (including access to presentations and the CFSA News)	✓	✓	✓	✓	✓	✓
Post Job opportunities on the website	Free	Free	\$50/\$75		N/A	N/A

* Applies to all employees in the corporation.



Amendments to the Fire Protection and Prevention Act, 1997

On December 15, 2005, Bill 128 received Royal Assent and became the Law Enforcement and Forfeited Property Management Statute Law Amendment Act, 2005. The Act amends seven different Acts in relation to law enforcement matters, namely:

1. Building Code Act, 1992
2. Crown Attorneys Act
3. Electricity Act, 1998
4. Fire Protection and Prevention Act, 1997 (FPPA)
5. Municipal Act, 2001
6. Prohibiting Profiting from Recounting Crimes Act, 2002
7. Remedies for Organized Crime and Other Unlawful Activities Act, 2001

Amendments to the Fire Protection and Prevention Act, 1997, (FPPA) have resulted in a doubling of the maximum fines for

all offences described in Sections 28, 29 and 30 of the FPPA.

Most sections of the Law Enforcement and Forfeited Property Management Statute Law Amendment Act, 2005, including the amendments to the FPPA, came into force on Royal Assent, that is on December 15, 2005. However, amendments to the Crown Attorneys Act and some of the amendments to the Electricity Act, 1998, and the Municipal Act, 2001, do not come into force until proclamation by the Lieutenant Governor. The proclamation dates have not yet been determined.

The Law Enforcement and Forfeited Property Management Statute Law Amendment Act, 2005 can be viewed in its entirety on the Government of Ontario e-Laws Web site at www.e-laws.gov.on.ca/DBLaws/Source/Statutes/English/2005/S05033_e.htm.

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 cfসা@taylorenterprises.com.

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

Name _____

Company Name _____

Address _____

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Ontario Fire Code Section 9.9



On January 1, 2007, Ontario Regulation 338/97 (Amended to O. Reg. 144/06) is amended by adding Section 9.9. to the Ontario Fire Code. Section 9.9 specifically applies to hotel establishments.

The new section can be currently viewed on the Office of the Ontario Fire Marshal's website at www.ofm.gov.on.ca.



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 Website: www.canadianfiresafety.com**

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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.

Class 2 Corporate

Same as Basic Corporate as well as one exhibit table at the Annual Education Forum and Trade Show and a 1/2 page advertisement in each of the four issues of the CFSA Newsletter.

Class 1 Corporate

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

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
<input type="radio"/> Associate	\$ 25.00	\$ 1.75	\$ 26.75

CFSA Application for Membership

Name _____

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Address _____

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Please indicate how you first heard about CFSA: _____

Please indicate in the appropriate box the category that best describes your vocation:

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Cheque Enclosed \$ _____



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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 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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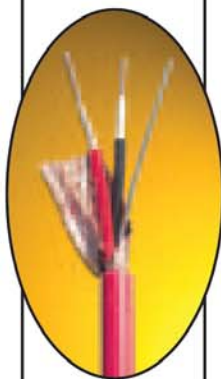
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Now satisfy both with cost-effective, easy-to-install PyroCiC™ 2-hour fire-rated cable.

The 2002 NFPA 72 is clear. When emergency notification circuits are used for partial evacuation or relocation of occupants, the wiring must be fire-survivable. Ignore the code, and you could be facing heavy consequences — not just the financial cost of penalties, but the devastating cost of human life.

Fortunately, compliance is easier and less costly than you think. Because new PyroCiC 2-hour fire-rated cable from Pyrotenax was specially designed to meet the survivability and installation requirements of NFPA 70 and NFPA 72.

Triple barrier. Triple protection. High-quality PyroCiC features an exclusive triple-barrier design — mica glass tape, silicone rubber insulation and a copper foil shield, all contained in a low-smoke, zero-halogen jacket. When installed in 3/4-inch EMT, it provides the 2-hour protection that shields critical fire alarm circuits from fire.



PyroCiC™ 2-hour fire-rated cable. Triple-barrier PyroCiC fire alarm cable meets the revised NFPA 72 survivability requirements, and makes installation and retrofit easy and economical.

Tremendous cost savings. Forget high-dollar renovations. PyroCiC allows both the initial run and the return loop to be installed in the same shaft. That means the cost of meeting the code — in new installations or retrofits — is a fraction of the cost of construction alternatives.

Quick, easy installation. Unlike cables with pressure-extruded jacketing, PyroCiC features a "tubed" jacket for fast, simple removal without damage to the insulation. Just score, break and remove. Color-coded — not merely labeled — wires help speed installation, too.

Don't wait. Don't risk the costs of noncompliance. Find out more about PyroCiC cable by calling 1-800-234-6501, e-mailing info@tycothermal.com or visiting www.tycothermal.com. It's a matter of code. It's a matter of conscience. It's a matter of time.



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How prepared are you?

There are a lot of ways to safeguard your building. But unless you employ a detection system that provides your assets with the safety and security they deserve, you're, well, playing with fire.

With the Siemens FireSeeker FS-250C, you receive a superior sensory system that exceeds both your needs and those of your building. Designed specifically for smaller to mid-sized buildings, its

cutting-edge, addressable technology notifies the fire department and alerts building occupants to the threat of fire in the blink of an eye.

With over sixty years of innovation, Siemens Fire Safety Division products can offer you the right equipment to ensure both you and your building have the assurance of complete protection.



Visit siemens.ca to discover more information about Siemens Building Technologies Fire Safety Division and our no-false-alarm guarantee.

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