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CFSA news

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AUGUST 2007

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Inside this issue

Editor: Matteo Gilfillan

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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
Canadian Fire Safety Association
2175 Sheppard Ave., E., Suite 310
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Janet O'Carroll

PRESIDENT'S message

I would like to thank the CFSA membership for re-electing me as President for the April 2007 to April 2008 term. What a fantastic time to represent this organization. Our industry is currently experiencing many changes in its codes and standards, such as the new objective based Ontario Fire Code which has been released and comes into effect on November 21, 2007.

The annual general meeting held at our annual education forum in April marked the start of a new CFSA year. On behalf of the board of directors, I would like to thank David Speed for his contribution on the board over the last year and wish him all the best. I would also like to welcome Rocky Mino, Fire Prevention Officer for the Markham Fire and Emergency Services to the board of directors. Rocky is a previous winner of the Peter Stainsby Scholarship award, 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.

Our Annual Education Forum was held on April 25, 2007 and was a great success. We had many excellent topics and speakers at the forum and you will be able to find a brief outline on each topic within this edition of the CFSA News. I would like to thank our major sponsors for the event including OPG (Gold Sponsor), Fire Monitoring of Canada and Nadine International Inc. (Silver), and Randal Brown and Associates Ltd. (Bronze). In addition I would like to congratulate all of the CFSA Scholarship student award winners. Each student has earned their scholarship by obtaining a minimum academic proficiency of 3.25/4.00 in the fields of fire suppression, fire alarm systems and codes and standards. Each year six corporations including Leber/Rubes Inc., Nadine International Inc., Randal Brown and Associates Ltd., the Canadian Fire Alarm Association, the Canadian Automatic Sprinkler Association and Underwriters Laboratories of Canada generously support our scholarship program. Without their support, our scholarship program would not be what it is today.

Lastly, I would like to thank the board of directors for all of their hard work and dedication over the last year and for the upcoming year. The Committee Chairs are already hard at work putting together an exciting program of dinner meetings, technical sessions and joint CFSA/NFPA seminars for the fall.

As always, we welcome input from our membership for any dinner meeting or technical session topics, articles for the CFSA News, and suggestions or comments. I wish all of our members an enjoyable and safe summer.

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

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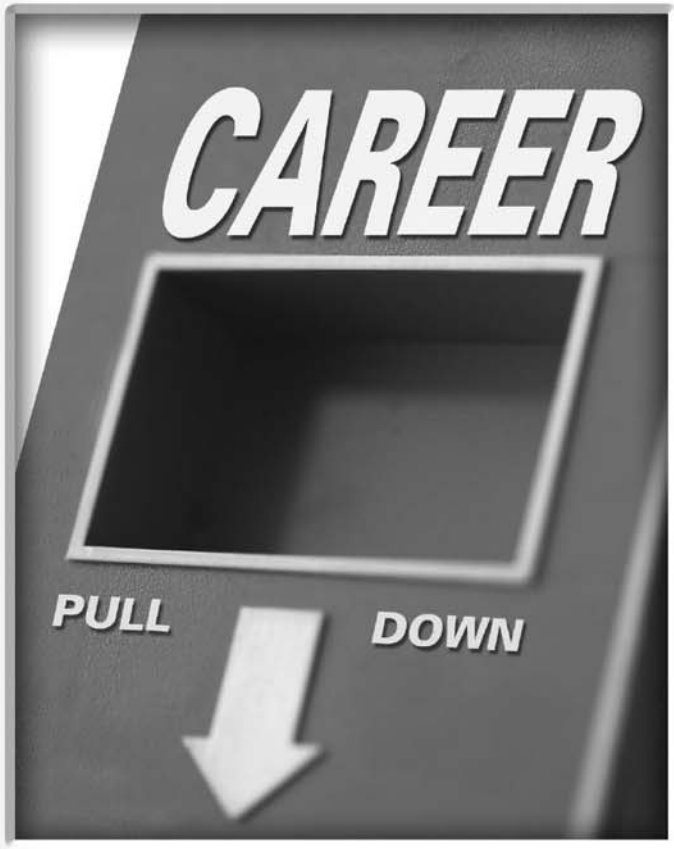

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Matteo Gilfillan

EDITOR'S note

The focus of this edition of the CFSA News surrounds the CFSA's Annual General Meeting (AGM), which was held on April 25, 2007, at the Sheraton Hotel, in Richmond Hill, Ontario. The presentation topics at the AGM included:

- Updates on Objective Based Codes,
- Emergency Electrical Power Supply for Buildings,
- Revisions to CAN/ULC-S524, "Installation of Fire Alarm Systems",
- Past, Present, and Future of Fire Alarm Systems,
- An Update On Sprayed Fire Resistive Materials, and
- An overview of Revisions to NFPA 13.

A summary of each presentation can be found in this edition of the CFSA News, for those who were unable to attend.

I personally found the day to be quite informative and the presentations to be topical. I would like to extend thanks to all of our presenters, who made the AGM the success that it was. In addition, thank you to the Toronto Fire Services for providing the Fire Sprinkler Demonstration Trailer Information and Tour session, which was quite the hit at the AGM.

Also featured in this edition of the CFSA News are articles on photoluminescent exit path marking, sprinkler protection of residential buildings, ESFR sprinklers, and recent amendments to the 2006 Ontario Building Code.

The CFSA News journal committee is looking for articles and topics for articles from our membership. If you are interested in providing an article or would like to see a specific topic discussed in the CFSA News, please contact us.

It is amazing how fast my first year on the Board of Directors, and as CFSA News Editor, have passed. I have truly enjoyed my involvement with the Association and look forward to continuing in my capacity as Editor of the CFSA News.

Matteo Gilfillan, C.E.T., CFPS

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Sprinkler Protection **of All Residential Buildings**

This article was provided by Brian Maltby, Division Chief, Fire Prevention, Chief Fire Official, Brampton Fire and Emergency Services

In the January 2007 edition of CFSA News, Mr. Cyril Hare wrote about "Sprinkler Protection of Multi-Family Residential Buildings". As usual, the outspoken former Fire Chief of Mississauga Fire and Emergency Services got it right, for the most part! Ontario is the only jurisdiction in either Canada or the United States that doesn't require fire sprinkler protection in high-rise residential buildings. Whenever I mention this appalling morsel of information to my counterparts throughout the rest of Canada and in the United States, they are shocked that a province that has such a progressive reputation in terms of development would permit such a travesty. A case in point. I was showing International Code Council Vice President of Fire Services Jim Tidwell, and former Fort Worth, Texas Executive Deputy Chief, around town while he was attending a fire safety conference in Toronto, Ontario, last August. Mr. Tidwell was amazed at the development that was underway in the downtown core and jokingly commented that Toronto's symbolic bird should be the "crane"! When I alerted him to fact that none of these high-rise residential occupancies were protected with sprinklers, it was quite apparent that that his opinion of Toronto as a world class city took a hit. He was astonished, given Canada's world-renowned reputation as a caring and compassionate nation, that any jurisdiction would have such disregard for its' peoples' safety. Admittedly, I was then and still am to this day, embarrassed by such a shortcoming.

More important than my embarrassment, I am increasingly disturbed by our lack of action as it relates to sprinklers in all residential buildings. Mr. Hare was absolutely right when he wrote about the greater response and set up times that plague fire fighters when responding to fires in high-rise residential buildings compared to the response and set up times when responding to fires in single family dwellings. There is little doubt that this issue needs to be strategically addressed. But, the fact remains that the majority of fire deaths in Ontario and presumably the rest of Canada, occur in single family and semi-detached homes and in row houses. So while sprinklers certainly would improve the chance of survival for residents of high-rise occupancies, the same can be said for those people who reside in residential occupancies other than high- rise buildings; in buildings where most Ontarians reside and where the majority of people are dying.

The people of Ontario and the rest of Canada have come to embrace new technologies in a number of areas, such as communications, entertainment, transportation and I know empirically from data collected recently that they feel the same about fire safety in their homes. The lawmakers must make it accessible to all of the residents because the people have said time and time again that it government's role to regulate their safety.

So while my good friend Mr. Hare, is advocating sprinklers in high-rise residential occupancies, I claim that as leaders in fire safety, that isn't enough. Sprinklers in high-rise residential occupancies are a good thing, however, would merely provide a level of protection that is the norm throughout the rest of Canada and United States. A status quo of sorts. If we really want to be leaders in fire safety, we must take the next step and legislate sprinklers in all classes of occupancies where people reside. We owe it to the elderly, the young, our students, and our physically and developmentally challenged and in fact, to every one who lives in and visits our country.

From the beginning of democracy, the loftiest role for any government is to protect the people it serves. So let's build on Mr. Hare's assertions and make Canada and Ontario the leaders in fire safety once again. Make our legislators accountable to fulfill their obligation as protectors of the populous. Tell the politicians and bureaucrats that residential sprinklers are an affordable, reliable technology whose time has come.■

Photoluminescent **Exit Path Marking**

This article was provided by Ms. Sheila Henthorn, P.Eng., Project Engineer at Randal Brown & Associates Ltd.

Photoluminescent material is composed of a compound containing chemical pigments that store light from electrical or natural light sources. The light is absorbed in the form of photons. The photoluminescent material stores these photons and emits light (glows) when the light source is removed. Over time the energy stored by the compound will deplete until the material no longer glows. The material can be "re-charged" by exposure to a light source.

The quality of photoluminescent material varies depending on its application. Children's toys or stickers require lower levels of luminescence whereas materials used as part of a life safety system require high levels of luminescence and an increased ability to maintain its charge.

Photoluminescent marking (PLM) for buildings comes in many forms, including paint, signage and plastic strips. The purpose of PLM is to aid occupants in evacuating a building by guiding people along the egress paths. Wayfinding systems can include exit signs, directional signage, door markings, path markings and obstruction identification.

The need for this type of system is illustrated in interviews conducted with survivors of building fires. The most common complaint amongst survivors is poor visibility in exiting the building. Many people complain that the building is too dark during egress. Studies have shown that smoke will obscure the emergency lighting provided for the egress routes.

Photoluminescent path marking can be installed at floor and handrail levels, and signage is installed at typical heights. Since the path marking is installed at levels lower than traditional emergency lighting, this marking is not obscured by smoke.

Photoluminescent material was discovered in the beginning of the twentieth century and greatly developed during the Second World War. During the last few decades dramatic improvements have been made in photoluminescent technology. As a result, the use of photoluminescent material to mark exit paths has greatly increased.

Prior to the early 1980s, photoluminescent exit path markings (PLM) required a continuous power source to charge the substance. The introduction of zinc sulphide crystals in the early 1980s permitted the use of PLM without an additional power source. A light source is still required to "charge" the material so that it will glow when lighting is removed. High-performance photoluminescent material is capable of emitting light more than 1,000 times brighter than the visual threshold of the dark adapted human eye (0.003 mcd/mÇ) for a period of more than 2 h after being charged 4 000 K fluorescent lights at a 2 ft-candle charge.

The luminance (luminous intensity or brightness) of photoluminescent material is measured in millicandelas (mcd) per unit area. This unit of measurement cannot be compared to lumens per ftÇ (lux) or foot-candles, which is used for traditional emergency lighting, and measures the illuminance of a light source (the amount of light that reaches a surface).

PLM was originally used in offshore platforms and underground power plants, and can also be found in trains, ships and airplanes. As the technology improved, the use of PLM in buildings has begun to increase. Most notably, PLM has been proposed for the exit stairwells in high rise buildings. New York City's Local Law 26, enacted in 2004, requires both new and existing commercial high rise structures to have continuous photolumines-

cent directional egress path markings in all stairwells.

A number of installation and material standards have been developed for PLM and components of a photoluminescent marking system, including:

- New York City Standards 6 1, May 2005
- ASTM 2030, *"Standard Guide for Recommended Uses of Photoluminescent (Phosphorescent) Safety Markings"*, (2007 edition),
- ASTM 2072, *"Standard Specification for Photoluminescent (Phosphorescent) Safety Markings"*, (2004 edition),
- ASTM 2073, *"Standard Test Method for Photopic Luminence of Photoluminescent (Phosphorescent) Markings"*, (2002 edition),
- ISO 16069, *"Safety Way Guidance Systems (SWGS)"* (2004 edition),
- ULC-ORD-C924, *"Photoluminescent and Self-Luminous Exit Signs"*, (2002 edition), and
- UL 1994, *"Standard for Luminous Egress Path Marking Systems"* (2004 edition).

These Standards include requirements for the physical properties of the photoluminescent material (washability, flame spread, radioactivity, toxicity), size and location of components in a marking system, and brightness rating for the material.

In Canada, the National Research Council has conducted a number of studies to evaluate the use of PLM compared to conventional emergency lighting with respect to their effect on human behavior when exiting a building. One such study was conducted in 1998 in collaboration with Public Works and Government Services Canada (PWGSC). In this study a 13 storey office building with four identical exit stairs was modified to address four separate egress lighting conditions. One stair was provided with emergency lighting at 57 lx, and a second stair was provided with lighting at 245 lx. Two stairs were provided with photoluminescent marking. Of these, one stair had emergency lighting at 74 lx and the other had no lighting. The markings for the two stairs with PLM were determined based on the Photoluminescent Safety Products Association (PSPA) Standard 002 Part1 1997.

An unannounced evacuation drill was performed and involved 500 occupants from the Ninth, Tenth and Eleventh Floors of the building. Cameras monitored the behavior of occupants in each exit stair, and the egress times were measured. A calculated egress speed was determined for each stair based on the number of persons that utilized each stair. The calculated speeds were compared with the speeds observed in each stair. It was observed that three of the four stairs had observed speeds greater than their calculated values. It was determined that the crowd density was the limiting factor in egress speed, and that the lighting conditions did not affect the time required for occupants to egress.

A subsequent study is being conducted by NRC to determine an appropriate guideline for the design of PLM in office buildings.

Given the positive results in recent NRC studies it seems likely that future editions of the National Building Code of Canada will incorporate photoluminescent marking for high rise buildings. The nature of photoluminescent marking makes it appropriate for use in stairwells, however, its suitability is questionable for other applications such as open floor areas (i.e., industrial buildings). As a result, it is likely that traditional emergency lighting requirements will be maintained in the NBC until further study is performed.

Resources:

Peckham, G. "Photoluminescent Directional Egress Path Marking Systems" *Archi-Tech Magazine*. Nov-Dec. 2005.

Proulx, G. *"Impacts of Photoluminescent Marking on Human Behaviour and Evacuation"* Presentation to Society of Fire Protection Engineers, Southern Ontario Chapter, Toronto, February 13, 2007.

Tonikian, R. et al. *Literature Review on Photoluminescent Material Used as a Safety Wayguidance System IRC-RR-214.* Ottawa. National Research Council Canada, 2006 ■

CFSA Annual Education **Forum Summary**

The following is a brief summary of the presentations and events that took place at this year's AGM.

The Canadian Fire Safety Association's (CFSA) Annual Education Forum was held on April 25, 2007, at the Sheraton Hotel, in Richmond Hill, Ontario. It was a full day of presentations and events that were both informative and pertinent to fire safety in Canada.

Updates on Objective Based Codes

Speakers: David Brezer, P.Eng., Ministry of Municipal Affairs and Housing (MMAH)

Leo Grellette, City of Vaughan Building Department

Jonathon Rubes, P.Eng., Leber Rubes Inc.

This presentation provided an update on recent and current activities of the Building and Development Branch, and an overview of the new Objective-Based Ontario Building Code (OBC) from the perspective of the Ministry (Mr. Brezer), the municipality (Mr. Grellette), and the consultant (Mr. Rubes).

Mr. Brezer spoke on the format, structure, and transition rules of the OBC as well as the general differences and similarities between the new 2006 OBC and the 2005 National Building Code of Canada (NBC). Mr. Brezer also noted that the MMAH is in the process of developing new training sessions geared towards the Objective-Based OBC.

Other notable items raised by Mr. Brezer include:

- the estimated release date of the "intent statements" for the OBC is the Fall of 2007,
- there is presently no Alternative Solution database proposed by the MMAH, and
- there is no immediate requirement for requalification to the 2006 OBC (this issue is currently under review by peer committees and stakeholders).

Mr. Rubes discussed his opinion on how, from a consultancy perspective, there is essentially not much change between the underlying foundation of the 1997 and 2006 OBC editions, as both editions practice prescriptive, performance and objective based concepts. Mr. Rubes expanded by providing the following example of interconnected floor space requirements (1997 OBC Subsection 3.2.8):

- **prescriptive:** number of air changes for smoke exhaust,
- **performance:** requirement to design to a maximum permissible level of smoke contamination in exits (1% for a 2 h duration),
- **objective:** smoke control is to prevent smoke from passing out of floor area.

Mr. Rubes also emphasized the importance of pre-stage consultation between the design team and the authorities to establish the acceptance of Code concepts before the design progresses.

Mr. Grellette reiterated the importance of pre-stage consultation between the design team and the authorities, with specific emphasis on involving the authorities with Alternative Solution proposals and recommended that a practical approach be taken when developing Alternative Solutions. Mr. Grellette also suggested that consideration be given to the fact that resistance may be experienced when incorporating Alternative Solutions in projects based in small town municipalities, which may not have staff that are qualified to review engineer-based Alternative Solutions and, as a result, may refer the proposals to the Building Code Commission (BCC).

Emergency Electrical Power Supply for Buildings

Speaker: R.B. (Brad) Buckler, C.E.T., Asco Power Technologies Canada

This presentation provided an overview on the changes to the 2005 edition of CAN/CSA C282, "Emergency Electrical Power Supplies for Buildings".

Mr. Buckler's presentation addressed key issues that impact the requirements for the installation, commissioning and maintenance of emergency generators as per CAN/CSA C282-05. Many changes in technology and the increased awareness of issues with power reliability have resulted in many changes to the C282 Standard.

Topics that were discussed include the following:

- generator set location requirements,
- requirements for both diesel and natural gas fuel supplies,
- control sequence requirements for the emergency power supply,
- transfer switches including when is a bypass required, and
- requirements for maintenance and testing.

Revisions to CAN/ULC-S524, "Installation of Fire Alarm Systems"

Speaker: Al Cavers, Underwriters' Laboratories of Canada

This presentation provided an overview on the changes to the 2006 edition of CAN/ULC-S524, *"Standard for the Installation of Fire Alarm Systems".*

Mr. Cavers identified that the majority of the changes to the 2006 edition of the

Standard (from the 2001 edition) were to provide clarification for the user so that the Standard is easier to interpret. Mr. Cavers spoke on changes to the glossary, reference to transponders, device location and installation requirements, and reference to isolators to name a few.

Items/changes of specific note include:

- new section specifically addressing fault isolation modules,
- expanded requirements regarding data communication link (DCL) wiring techniques and circuit loading,
- new requirements for control units and/or transponders, and
- interconnection to the Fire Signal Receiving Centre (CAN/ULC S561).

Sprayed Fire Resistive Materials – An Update

Speaker: Sander Trestain, B.Eng.Mgt, A/D Fire Protection Systems

This presentation provided insight into the present and future of fire protection solutions involving spray-applied fire resistive materials (SFRM).

This presentation included discussion on the following topics:

- fire separations and structural fire protection,
- test methods and rating information,
- ULC listings and product certification,
- SFRM types and applications, and
- emerging trends and issues.

Fire Alarm Systems – Past, Present, and Future

Speaker: David Sylvester, Morrison Hershfield

This presentation provided insight into the past, present and future fire alarm system solutions.

Mr. Sylvester discussed evidence that milestone fire loss events, forensics, codes and standards updates and social forces have had a direct impact on research and innovation in the field of fire alarm system design and that these forces are influencing the expectations being placed on developments in science and technology.

Mr. Sylvester noted that today's fire alarm initiation technology focuses on the 4 stages of fire: incipient stage (e.g., ionization smoke detection); smoldering stage (e.g., photoelectric detectors, aspiration smoke detection); flame stage (e.g., flame detectors); and heat stage (e.g., heat detectors, sprinklers, thermal wires).

In his research, Mr. Sylvester determined that future trends in the field of fire alarm system technology include:

- cybernetic research (smart systems applying active sensory input),
- adaptive modeling techniques, and
- automated case-based reasoning.

Overview of Revisions to the Standard for the Installation of Sprinkler Systems (NFPA 13, 2007 Edition)

Speaker: Larry Keeping, P.Eng, Vipond Fire Protection

Mr. Keeping provided a general overview of the recent changes to the 2007 edition of NFPA 13, *"Standard for the Installation of Sprinkler Systems".* Topics of discussion included the following:

- reformatting of the storage chapters,
- new requirements for information signs,
- revisions to the rules for the size of dry pipe and preaction systems,
- requirements for fire hose connections, and
- protection under exterior canopies.

A detailed article regarding Mr. Larry Keeping's presentation, which was presented earlier in the year at the March 2007 CFSA Morning Technical Session, is showcased in this edition of the *CFSA News.*

Toronto Fire Services Fire Sprinkler Demonstration Trailer Information and Tour

Following the Student Awards Presentation and Lunch, the Toronto Fire Services (TFS) conducted a live-fire demonstration for the AGM participants using the TFS Fire Sprinkler Demonstration Trailer. The trailer is designed for live fire demonstrations that dramatically illustrates the rapid nature of fire development and provide emphasis on the value of residential sprinkler systems.

- Residential quick response fire sprinklers operate 4 times faster than standard sprinklers of the same temperature rating preventing flashover.
- 82% of the fire deaths occur in a residential occupancy and sprinklers can substantially reduce that percentage.
- Only the sprinkler closest to the heat of the fire will activate.
- Water spray from a residential quick response sprinkler head sprays water high on the wall to cool hot fire gases.

The Fire Sprinkler Demonstration Trailer is an excellent tool to provide first-hand knowledge to the public, homebuilders, homebuyers, elected officials and other stakeholders regarding the advantages of fire sprinkler coverage cia a "live-fire" demonstration.

The CFSA would like to extend thanks to all of the presenters, who took the time out of their already hectic schedules to be a part of the AGM and who made the event the success that it was. In addition, thank you to the Toronto Fire Services for providing the Fire Sprinkler Demonstration Trailer Information and Tour session. ■

Technical Changes to the 2007 Edition of NFPA 13 **"Standard for the Installation of Sprinkler Systems"**

This article was provided by Mr. Harsh Desai, Fire Protection Technologist at Randal Brown & Associates Ltd.

The following is a summary of technical changes to the 2007 Edition of NFPA 13 "Standard for the Installation of Sprinkler Systems" as presented by Mr. Larry Keeping of Vipond Fire Protection at the CFSA seminar dated March 7, 2007.

2007 Cycle Summary

The 2007 cycle summary of the NFPA 13 Standard included six technical committees:

- Installation
- Discharge
- Hanging & Bracing
- Private Water Supply Piping
- Residential
- Correlating

A total of 740 public proposals and 410 public comments were submitted to the NFPA for consideration to the 2007 cycle.

Technical Changes

The 2007 NFPA 13 Standard has a revised chapter format with a total of 26 Chapters and 5 Annexes. The majority of the discussion provided in the annexe in previous editions has been moved into various chapters of the 2007 Edition, thereby making them part of the Standard and not just informal interpretations or discussions.

Chapter 3 – Definitions

Some definitions have been revised in the new edition of the NFPA 13. For instance, a compartment is now defined as follows:

A space enclosed entirely by walls and a ceiling. The compartment enclosure is permitted to have openings in walls to an adjoining space if the openings have a lintel depth of 8 in (203 mm) from the ceiling and the openings do not exceed 8 ft (2.44 m) in width. A single opening of 36 in. (914 mm) or less in width without a lintel is permitted when there are no other openings to adjoining spaces.

Note that the previous editions of NFPA 13 required openings to adjoining spaces to have minimum 8 in deep lintels.

Note that the above-mentioned opening requirements also apply to small rooms (i.e., rooms with areas no greater than 800 sq.ft. (74.3sq.m.).

Other revised terms include: branch line, sprig, non-combustible material, combustible material, reinforced plastic pallet and system working pressure to provide additional clarification.

There are also new definitions added to the 2007 NFPA 13. These definitions include multi-cycle system, waterflow alarm devices, institutional sprinklers, pilot line detectors, plastic pallets, wood pallets, tiered storage and arm-overs.

Chapter 5 - Occupancy & Commodity Classification

Discussions for Light and Ordinary hazard occupancies have been expanded in the annex for further clarification. This will assist the system engineer, designer and reviewing AHJ to properly classify the various types of occupancies.

Pallet types

Chapter 5 now requires unreinforced plastic pallets, which increase Class I-IV commodity classifications by one level, to be permanently marked as unreinforced plastic pallets (5.6.2.2). Where no marking exists, plastic pallets are to be assumed to be reinforced plastic pallets which will increase the Class I-IV classification by 2 levels (5.6.2.3).

Chapter 6-System Components and Hardware

Spare sprinklers

In addition to providing a spare sprinkler head cabinet (when required), a list of all sprinklers installed in the building is required to be posted in the spare head cabinet (6.2.9.7). The list is to include the sprinkler identification number (SIN) if equipped or the name of the manufacturer with information pertaining to the model

of head, the orifice size, the deflector type, temperature rating, pressure rating and quantity. Other required information includes a general description of the sprinkler(s), the quantity of each type to be contained in the cabinet and the issue or revision date of the list (6.2.9.7.1).

Updated Welding requirements

New dimensional requirements have been added to address acceptable weld characteristics including: minimum weld throat sizes, slip-on flanges, set up for circumferential butt joints, and tabs for longitudinal earthquake bracing.

New welding requirements include: welder's mark on each piece of pipe, annex illustrations of types of welds, and annex stress calculations to specify minimum weld sizes

Control valves

Systems requiring the closure of more than one control valve prior to working on the system are required to be provided with signage addressing both the existence and location of the valves. (6.7.4.3.1).

Chapter 7-System Requirements

Dry pipe systems

Five options are provided for sizing dry systems. They include:

- Dry system capable of delivering water to the 1-inch inspector's test connection within 60 seconds.
- Dry systems having volumes of less than 500 gallons (no delivery time requirement)
- Dry system volumes less than 750 gallons with a quick opening device (no required delivery time)
- Water delivery based on delivery times calculated using a listed program.
- System designed to discharge water from a manifold in accordance with Table 7.2.3.6.1

Three options are also provided for sizing residential dry-pipe systems as well as for double interlock preaction systems. The options provided for both are similar to that provided for non-residential dry systems except that the 500 and 750 USgal options are not available.

Preaction system Releasing Device

The spacing of releasing devices is required to be in conformance with their listing and the manufacturers specifications (7.3.1.6.1). The detection system is required to serve all areas protected by the preaction system (7.3.1.6.2) and thermal detectors (when used) are required to have a activation temperature that is lower than the preaction system sprinkler heads (7.3.1.6.3).

Antifreeze systems

Antifreeze systems located remotely from the riser are required to be provided with a placard on the system riser identifying the number and location of all systems supplied by that riser (7.6.1.4.). A placard identifying the type and brand of antifreeze solution, concentration and volume used is also required to be placed on the system riser (7.6.1.5.). Note that 70% and 80% concentration curves have been deleted (7.6.2.6.). Systems in excess of 40 gallons are required to be provided with a remote test/drain connection.

Chapter 8 - Installation Requirements

Basic Requirements

Portable wardrobe units, cabinets and trophy cases not intended for occupancy are not required to be provided with automatic sprinkler protection. However, when these units are located against a wall, the ? x L dimension is measured from the face of the wall and not the face of the units. This type of furniture is permitted to be attached to the finished structure (8.1.1(7)).

System Protection Area Limitations

Multiple buildings attached by canopies or common roofs are permitted to be supplied by a single sprinkler system. However, maximum system sizes are required to conform to 8.2.1 (8.2.4.). Conversely, detached buildings are to be provided with a system riser for each building (8.2.5.1) unless a common system riser is acceptable to the Authority Having Jurisdiction (8.2.5.2).

Protective Caps and Straps

Protective caps and straps for sprinkler heads are required to be removed in accordance with the manufacturer's listing before the sprinkler system is placed in service (8.3.1.5.1). It is intended that these caps / straps remain in place until construction activities have progressed to the point where sprinklers will not be subject to mechanical damage. These protective caps and straps are required to be removed from all sprinklers prior to placing the system into service (8.3.1.5.2). Alternately, caps and straps on upright heads installed more than 10 feet high are permitted to be removed immediately after their installation (8.3.1.5.3).

Temperature Rating

Sprinkler heads in walk-in coolers and freezers with automatic defrosting are required to have an intermediate or high temperature classification (8.3.2.5(5)).

Dry Sprinklers

Dry sprinklers connected to wet systems that protect areas subject to freezing are required to be of sufficient length to avoid freezing of pipe through conduction (8.4.10.1). Furthermore, the space around dry sprinklers that penetrate freezers is required to be sealed (8.4.10.2).

Maximum Distance Between Sprinklers

The distance between a sprinkler head and a wall is required to be measured from the centreline of the sprinkler head to the face of a wall and not to the face of a window - unless the window creates additional floor space. Where additional floor space is created, the sprinkler head is required to be measured to the window (8.5.3.2.4).

Deflector Position

For metal corrugated roof decks up to 3 inches, the sprinkler head deflector distance is measured to the bottom deck. When deeper than 3 inches, the sprinkler head deflector distance is measured to the highest point of the deck (8.5.4.1.2).

Obstructions to Sprinkler Discharge Pattern Development

The "Beam Rule" Table has been revised to allow standard spray sprinklers to be located up to 35 inches above the bottom of an obstruction when provided with a horizontal distance of 7 feet 6 inches (see Table 8.6.5.1.2). Also, a vertical distance of 21 inches is now provided for extended coverage sprinklers where a horizontal distance of 10 ft is provided (see Table 8.8.5.1.2).

Privacy Curtains

Privacy curtains in light hazard occupancies that are supported by fabric mesh on a ceiling track and which have openings in the mesh that are 70% or greater and extend a minimum of 22 inches down from the ceiling are not considered to be an obstructions to a standard spray sprinkler (8.6.5.2.2.1).

this article is continued on pg 22.

CFSA News in **Electronic Format**

Since the introduction of the "Members Section" on the CFSA website, the CFSA journal 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 news 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 News.

For those members who still wish to receive a printed copy of the journal, 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.

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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 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.

CFSA PETER STAINSBY AWARD
($1000.00)
Brandon Spearing

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)
Daniel Dixon

Presented by the CFSA and funded by Leber/Rubes Inc., Randal Brown & Associates Ltd., 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.

NADINE INTERNATIONAL INC. AWARD
($850.00)
Ryan Trimble

Presented to the 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.

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Presented to the 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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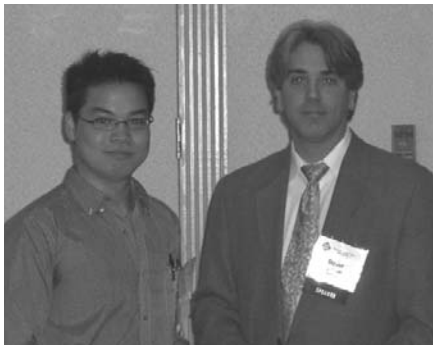

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Jay Pacheco

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UNDERWRITERS' LABORATORIES OF CANADA AWARD
($500.00)
Heather Austin

Presented to the TOP 1st year student of a 3 year Fire Protection Technology course with exceptional academic skills in all subjects and an academic proficiency of 3.25/4.00.

UNDERWRITERS' LABORATORIES OF CANADA AWARD
($500.00)
Yong Wang

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

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Our thanks to those who donated.

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Firestop **Inspection Training**

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

On November 16, 2006, the International Firestop Council (IFC) presented the topic of "Firestop Inspection Training" to members and guest of the Canadian Fire Safety Association (CFSA).

The IFC is a not-for-profit organization that promotes the technology of fire and smoke containment in modern building construction through research, education and development of safety standards and code provisions.

IFC presented 6 sections relating to firestopping, including containment in construction, code requirements, how firestopping is tested, the system approach, inspection of firestop systems, and the firestop contractors' international association.

Containment in Construction (i.e. where is firestopping required)?

Firestopping prevents the spread of flame and smoke through a structure during a fire. It is required for construction joints (e.g. top of wall or wall to floor slab), membrane protection (e.g. electrical boxes), through penetrations (e.g. piping through a wall assembly or cable through a floor assembly) and perimeter containment (e.g. exterior wall to floor slab).

Previous fires have highlighted the necessity for containment of fire and smoke using firestopping materials. For example, in 1980, prior to the requirement for the installation of firestop materials, 84 people died and 679 were injured due to smoke propagation in a fire at the MGM Grand Hotel.

In yet another example, in May 2001, a fire started on the 3rd floor of the Taipei Office Building and spread to the 26th floor. This was due to the unauthorized removal of firewalls and the lack of perimeter barrier firestopping.

Code Requirements

Requirements for the installation of firestop are defined within the Canadian and Ontario Building Codes, maintenance requirements within the Canadian and Ontario Fire Codes, and testing requirements within CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems".

Items addressed within the codes are through-penetrations (e.g. 6 inch steel pipe through concrete floor), membrane penetrations (e.g. electrical box in drywall), joints, and perimeter barriers.

How Firestopping is Tested

Firestopping materials are subject to testing conducted at third party testing laboratories such as Underwriters Laboratories, Underwriters Laboratories of Canada, FM Global, Omega Point Laboratories or Warnock Hersey, etc. Materials are tested to UL/ULC CAN/ ULC S115 or ASTM E-814 standards

There are three main parts to a UL/ULC system:

1. A fire rated wall or floor assembly.
2. Penetrating items (if any).
3. Firestop materials.

Testing is based on the time-temperature curve defined within CAN/ULC-S115. The main testing criteria for through-penetration systems include the following:

- F Rating – Prohibits the passage of flame through the system for the duration of the fire test.
- T Rating – Maximum temperature rise of 325 °F above ambient on the non-fire side.
- L Rating – Amount of air leakage.
- Hose Stream performance.

Table 1

C-AJ-1079		
First Alpha Character	**Following Apha Characters**	**Numeric Component**
F – Floors	A – Concrete Floors (≤ 5 in. thick)	0000-0999 – No penetrant
W – Walls	B – Concrete Floors (> 5 in. thick)	1000-1999 – Metallic pipe, conduit or tubing
C – Walls and Floors	C – Framed floors	2000-2999 – Non-metallic pipe, conduit or tubing
	D – Steel decks in marine vessels	3000-3999 – Electrical cables
	E-I – Reserved	4000-4999 – Cable trays with electrical cables
	J – Concrete or Masonry walls (≤ 8 in. thick)	5000-5999 – Insulated pipes
	K – Concrete or Masonry walls (> 8 in. thick)	6000-6999 - Busways
	L – Framed walls	7000-7999 – HVAC ducts
	M – Bulkheads in marine vessels	8000-8999 – Mixed multiple penetrations
	N-Z – Reserved	9000-9999 - Reserved

Joint systems are tested for cyclic movement for thermal, wind sway and/or seismic movement in addition to fire resistance testing.

The System Approach

The "system approach" is a combination of UL/ULC classified firestop materials used to protect a penetration, opening, joint, etc., is tested based upon CAN/ULC-S115, and achieves a specific rating (i.e. 1 hr F, etc.). The firestopping materials (including type, thickness, manufacturer, etc.), type of construction materials, penetration type, annular space, specific rating, etc., form a system. Variances in any one of the features can alter the system performance.

Each testing laboratory has a specific way to identify listed systems. For example, Underwriters Laboratories (UL) uses the following alpha-numbering system for through-penetration firestop systems (see table on next page).

When a tested system for a specific application does not exist, an engineering judgement prepared by the manufacturer, third party laboratory or a professional engineer may be accepted by the authority having jurisdiction.

Firestop Inspections

Currently in Ontario, there are no licensing requirements for firestopping contractors. As such, firestopping products can be installed by the construction trades (e.g. electrical, mechanical and plumbing contractors, etc.). Because of competing priorities (e.g. time constraints, budgetary constraints), firestopping is often not of utmost importance to contractors. In addition, insufficient training in the installation of firestop materials may result in inferior installation, or in some cases, no installation at all, particularly in existing buildings.

The installation of firestop materials should be inspected, either internally or by a third party, to ensure it has been done properly. There are recognized firestop inspection standards produced by ASTM including, ASTM E2174, "Standard Practice for On-Site Inspection of Installed Firestops and ASTM E2393, "Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers".

The International Firestop Council offers a variety of training opportunities for inspection of firestop systems, including a video, pocket guide and training sessions offered by industry representatives.

Ideally, firestop systems should be installed by approved contractors only. The Firestop Contractors International Association (FCIA) worked with FM Approvals to develop FCIA/FM 4991, 'Standard for Approval of Firestop Contractors". To become approved, the contractor firm appoints a Designated Responsible Individual (DRI), who must past a rigorous industry test to become the key person in the firm to monitor the firestopping quality management process. FM Approvals then audits the contracting firm's procedures as listed in their Quality Manual to confirm that the firm's paper trail is in order for successful installation of Firestop Systems. A destructive test in the field is performed to verify the management process. FM 4991 Approval is only given those firms who have passed both the DRI Test and the Initial Facility and Procedure Audit Process. Follow up Audits are performed by FM Approvals yearly by FM Personnel. DRI's must retest and provide verification of CEU eligible Education sessions attended every three years. Testing occurs at FCIA Conferences. ■

The Canadian Fire Safety Association would like to thank the International Firestop Council for making this presentation available to our membership. For more information on the International Firestop Council visit www.firestop.org.

Early Suppression **Fast Response Sprinklers**

This article was provided by Don Casey, A.Sc.T., CFPS, Assistant Project Manager at Randal Brown & Associates Ltd.

What Are They?

The use of Early Suppression Fast Response (ESFR) sprinkler systems is becoming more prevalent in the protection of warehouse storage occupancies. But what are ESFR sprinklers and what is their benefit? In answering these questions, we will first look at types of systems that are used to protect warehouse occupancies.

Types of Sprinkler Systems – Warehouse Occupancies

There are two basic types of sprinkler systems used to protect storage hazards. These systems are classed by the type of sprinkler head which is:

- Control Mode sprinkler heads, and
- ESFR sprinkler heads.

Control Mode Systems

Control mode sprinkler systems are designed to control a fire until its original fuel source is depleted or until fire fighting activities can commence. A fire is controlled by cooling the ceiling level air temperatures, reducing the fire's rate of heat release, and pre-wetting adjacent combustibles. These objectives are discussed in the following paragraphs.

The design of control mode systems acknowledges that a certain number of sprinkler heads will operate directly above and around the fire (fire area). In operation, the sprinklers located directly above the fire reduce the fire's heat release rate and cool the ceiling level air temperature. Cooling the ceiling level air temperatures works to prevent the operation of sprinklers beyond the fire area while protecting against structural damage that could result from high ceiling level air temperatures.

Sprinklers operating in the remainder of the fire area also cool the ceiling level air temperatures while pre-wetting adjacent combustibles. Pre-wetting adjacent combustibles helps to prevent the spread of fire beyond the fire's origin.

ESFR Systems

ESFR sprinkler systems are designed to extinguish as opposed to control a fire. Extinguishment is accomplished by discharging increased water flows (when compared to control mode systems) directly to the fire. This increased flow penetrates the fire plume (rising hot gases usually accompanied by smoke) and attacks the fire's fuel source thus reducing the heat release rate of the fire until it is extinguished.

System Installation

Control Mode Installations

Prior to the introduction of ESFR sprinklers in the late 1980's, all warehouse storage facilities were protected by control mode sprinklers. Furthermore, storing commodities in storage racks typically required the installation of in-rack sprinkler systems.

In-rack sprinkler systems are a cause of concern to many warehouse operators in that they add to the cost of the sprinkler installation and require modification if the racking layout is changed. However, the most important concern is that of mechanical damage.

The use of Early Suppression Fast Response (ESFR) sprinkler systems is becoming more prevalent in the protection of warehouse storage occupancies.

In-rack sprinkler systems are susceptible to mechanical damage from the constant movement of goods in and out of the racks by forklift trucks. Forklift operators typically do not have a vantage point that allows them to view the in-rack sprinklers. Hitting the sprinkler system piping or sprinkler head often results in a system leak which can damage the stored goods, may signal the fire department to respond and will require the services of a sprinkler system repair company.

ESFR Installations

For most applications, ESFR systems eliminate the need to install an in-rack sprinkler system. Eliminating the in-rack sprinkler system eliminates the main concern of warehouse operators, mechanical damage causing accidental system discharge onto the stored commodities.

Also, ESFR systems are typically designed to protect a wide array of commodities ranging from steel to plastic (control mode systems are often designed to protect only the commodities that were stored at the time of system installation). This grants the warehouse operator greater flexibility when considering future storage operations or leasing opportunities.

ESFR system material costs tend to cost more that control mode systems (larger pipe sizes, more expensive sprinkler heads). Also, in most cases an ESFR system will require the installation of a fire pump which is not always required for a control mode system. However, an ESFR system will offer savings in that in most cases, in-rack sprinkler systems are not required.

ESFR System Considerations

The benefits of ESFR systems are listed above, however there are certain considerations that must be addressed prior to using an ESFR system. These considerations include:

- Storage Heights – maximum permitted storage height of 40 ft,
- Building Heights – maximum permitted building height of 45 ft.
- Rack Shelving – solid rack shelving is not permitted,
- Fire Pump – large discharge rates and high system operating pressures will require the installation of a fire pump, and
- Obstructions – ESFR sprinkler heads are more sensitive to obstructions (lighting, pipe, structural members, duct, etc…) which will require greater system design coordination.

Summary

As discussed, the use of ESFR systems has certain restrictions, namely building and storage height and sprinkler head obstructions that requires more attention to be paid to co-ordination with other trades. That said, considering the flexibility granted to future storage uses and in most cases, eliminating the occurrence of in-rack system discharge onto stored commodities, it is not surprising that more warehouse operators are turning almost exclusively to the use of ESFR sprinkler systems.■

this article is continued from pg 14.

Sidewall Sprinklers
Sidewall sprinklers used to protect floor areas below overhead doors in an ordinary hazard occupancy are permitted to be spaced in accordance with the spacing requirements for light hazard occupancies. However, the ordinary hazard discharge density requirements are still required to be met (8.7.3.1.7).

ESFR Sprinklers
The minimum ESFR sprinkler protection area has been reduced to 64 sq.ft. from 80 sq.ft. (8.12.2.3) However, a minimum design calculation area of 960 sq.ft. is still required to be maintained.

Residential Sprinklers
Residential sprinkler heads are permitted to be spaced without regard to ceiling fan blades provided the plan view of the fan is at least 50 percent open (8.10.7.2.1.7) Note that the 4 time rule still applies to the motor housing.

Concealed Spaces
Combustible materials such as cabling, non-metallic plumbing piping, non-structural wood, etc. present in minor quantities in non-sprinklered concealed spaces (of limited or non-combustible construction) should not necessitate the installation of sprinkler protection (A.8.15.1.2.1). As an example, it is not the intent of 8.15.1.2 to require sprinkler protection in interstitial spaces in typical office buildings (where protection may not otherwise be required) due to the presence of the typical amount of cabling.

Exterior Roofs, Canopies or Porte-Cocheres
Sprinklers can be omitted from below exterior roofs and canopies if they are constructed of non-combustible or limited combustible materials, or fire-retardant treated wood per NFPA 703 (8.15.7.2). Note that it is not the NFPA committee's intent to provide sprinkler protection below porte cocheres at hotels where vehicles are parked temporarily. However, if the building extends above the porte cochere (i.e. there is an occupancy located above), then sprinklers should be provided below the porte cochere.

Sprinklers are also permitted to be omitted from below exterior roofs and canopies and porte-cocheres of combustible construction provided that the exposed finish material is non-combustible, limited combustible, or fire-retardant treated wood and the roof, canopy or porte-cochere contains only sprinklered concealed spaces or any of the following unsprinklered combustible concealed spaces (8.15.7.3):

- Combustible concealed spaces filled entirely with non-combustible insulation,
- Concealed spaces formed by non-combustible or limited combustible materials attached directly to the underside of solid wood joists that create unenclosed joist space volumes no greater than 160 cu.ft in light or ordinary hazard occupancies., or
- Concealed spaces over isolated small roofs, canopies or porte-cocheres not exceeding 55 sq.ft. in area.

Drainage
Dry or preaction systems utilizing low point drains are required to be provided with signage at the system valve identifying the total number of low point drains and each of their locations (8.16.2.5.3.6).

Protection Against Freezing
Listed heat tracing systems used to prevent pipe from freezing are required to be supervised (8.16.4.1.4). Heat tracing systems used on branch line piping are required to be listed for use on branch line piping (8.16.4.1.5). Note that there is no listed branch line heat tracing system currently on the market.

Hose Connections
$1^{1/2}$" hose connections (when required) are to be installed such that the hose valves are capable of reaching all portions of the area with 100 feet of hose plus a 30 feet hose stream distance (8.17.5.1.1). Subject to approval from the AHJ, fully sprinklered buildings are not required to be provided with $1^{1/2}$?" hose connections for use by the building occupants (8.17.5.1.2)

Chapter 9-Hanging, Bracing and Restraint of System Piping

Trapeze Hangers
All components of a trapeze hanger assembly are required to be sized to support the suspended pipe (9.1.1.6) and rings, straps or clevis installed on a pipe trapeze are required to fit the pipe size of the trapeze member (9.1.1.6.6)

Hanger Rods
Hanger rods are required to be installed on sprinkler piping to avoid lateral gravity loads on the rod (9.1.2.3).

Flexible Sprinkler Hose Fittings
Listed flexible sprinkler piping and all associated components are required to be installed in accordance with their listing and the manufacturer's requirements (9.2.1.3.3.1). When installed and supported by suspended ceilings, the ceiling is required to conform to ASTM C 635 and is required to be installed per ASTM C 636 (9.2.1.3.3.2). Lastly, flexible sprinkler hose fittings that exceed 6 feet in length and are supported by a suspended ceiling are required to be provided with a hanger to limit the unsupported length to 6 ft. (9.2.1.3.3.3).

Sprigs
Sprigs 4 ft or greater in length are required to be restrained against lateral movement (.9.2.3.7).

Riser Clamps
Riser clamps anchored with hanger rods in the horizontal position are not permitted to be used to vertically support riser piping (9.2.5.3).

Protection of Piping Against Damage Where Subject to Earthquakes
The NFPA 13 requirements for spacing braces for seismic restraint and for calculating loads on braces have been revised to comply with ASCE 7 (Minimum Design Loads for Building and Other Structures). NFPA 13 now provides a simplified method to determine bracing requirements without the need to do a complete engineering analysis (see 9.3).

Chapter 10-Underground Piping
This chapter has been reformatted.

Chapter 11-Design Approaches
This chapter has been reformatted for better clarity and to provide a more logical flow.

Chapter 12-General Requirements for Storage
This chapter provides the general requirements applicable to all storage occupancies other than miscellaneous storage.

Building and Storage Height
The design of a sprinkler system is required to be based on the storage heights and ceiling clearances (between the top of storage and the ceiling) that

will routinely or periodically exist and will create the greatest water demand. When placed above doors, storage heights are to be measured from the base of storage above the door (12.1.3.3).

Ceiling Height

Where ceiling heights are greater than 30 feet and the clearance between the ceiling and top of storage exceeds 20 ft, sprinkler protection is required to be provided for the storage height that would result in a 20 ft clearance between the ceiling and top of storage (12.1.3.4).

Hose Connections

Small hose connections (1 ?") are to be provided where required by the authority having jurisdiction in accordance with 8.17.5 for first-aid fire-fighting and overhaul operations (12.2.1).

Chapter 13-Miscellaneous Storage

This chapter addresses the design criteria for the protection of miscellaneous storage and Class I to IV commodities to a maximum height of 12 feet.

References to the Ordinary and Extra Hazard design curves for protecting miscellaneous storage were deleted in the 2002 NFPA 13. These references have been re-inserted in the 2007 edition. Reintroduction of the Ordinary and Extra Hazard design curves permits for reductions in calculated design areas when quick response sprinklers (Ordinary Hazard design curves) or high temperature sprinklers (Extra Hazard design curves) are used.

Chapters 14 to 20-Specific Types of Storage

Chapters 14 to 20 are provided to address design criteria for specific types of storage which were previously addressed in Chapter 12 of the 2002 NFPA 13

Chapter 14 - Protection of Class I to Class IV Commodities That Are Stored Palletized, Solid Piled, Bin Boxes or Shelf Storage (previously addressed under 12.2.1 and 12.2.2. of the 2002 Edition)

Chapter 15 - Protection of Plastic and Rubber Commodities That Are Stored Palletized, Solid Piled, Bin Boxes or Shelf Storage (previously addressed under 12.2.1 and 12.2.3 of the 2002 Edition)

Chapter 16 - Protection of Class I Through Class IV Commodities That Are Stored on Racks (previously addressed under 12.3.1, 12.3.2 and 12.3.4 of the 2002 Edition)

Chapter 17 - Protection of Plastic and Rubber Commodities That Are Stored on Racks (previously addressed in 12.3.1, 12.3.3 and 12.3.5 of the 2002 Edition)

Chapter 18 - Protection of Rubber Tire Storage (previously addressed under 12.4 of the 2002 Edition)

Chapter 19 - Protection of Roll Paper (previously addressed under 12.6 of the 2002 Edition)

Chapter 20 - Special Designs of Storage Protection (previously addressed under 12.5 and 12.7 of the 2002 Edition)

Chapter 21-Special Occupancy Requirements

Contents of this chapter were previously covered in Chapter 13 of the 2002 Edition. This Chapter now contains all of the requirements for special occupancies that were extracted from other NFPA Standards. This includes:

- NFPA 37, "Stationary Combustion Engines and Gas Turbines",
- NFPA 86, "Ovens and Gas Furnaces",
- NFPA 101, "Life Safety Code" (updated and moved from Annex D), and
- NFPA 140, "Soundstages and Approved Production Facilities".

Chapter 22-Plans and Calculations

Contents of this chapter were previously covered in Chapter 14 of the 2002 Edition. Effective January 1, 2008 all hydraulic calculation reports generated by computer are required to include a summary sheet, graph sheet, supply analysis, node analysis and detailed worksheets.

Antifreeze systems greater than 40 USgal in volume are required to be calculated using the Darcy-Weisbach formula.

Chapter 23-Water Supplies

Water supplies were previously covered in Chapter 15 of the 2002 Edition. Water supplies are required to be evaluated for conditions that contribute to unusual corrosive properties (25.1.5.2). If such properties exist, the owner(s) is required to notify the sprinkler system installation contractor to develop a plan to treat the water supply through one of the following methods:

- Install corrosion resistant pipe,
- Treat the water with a listed corrosion inhibitor,
- Monitor interior conditions of the water supply piping at several intervals.

Chapter 24-System Acceptance

System acceptance was formerly addressed in Chapter 16 in the 2002 Edition. The sprinkler contractor is now required to provide a sign to indicate general information including system design criteria and inspection, testing and maintenance information as required by NFPA 25. These signs are to be posted at each system riser, antifreeze loop and an auxiliary system shut-off valve. Information required to be included on the sign includes:

- Name and location of the protected facility
- The presence of high piled or rack storage
- Planned maximum storage height
- Planned aisle widths
- Commodity classification
- Pallet load encapsulation
- Presence of solid shelving
- Water supply information
- Presence of flammable/combustible liquids
- Presence of hazardous material
- Presence of special storage
- Location of auxiliary and low point drains
- The original results of the main drain test
- Name of installation contractor or designer
- The presence and location of antifreeze or other auxiliary systems

A sample of a general information sign is included in Figure A-24.6

Chapter 25-Marine Systems

Previously addressed under Chapter 17 of the 2002 Edition.

Chapter 26-System Inspection, Testing and Maintenance

Previously covered in Chapter 18 of the 2002 Edition.

Note

Please refer to the actual Standard for the wording of all requirements. ■

Amendments to 2006 Building Code

This article was obtained from the OBC website (www.obc.mah.gov.on.ca)

On April 2, 2007, O. Reg. 137/07 was filed. This regulation amends the 2006 Building Code (O. Reg 350/06) updating the list of applicable law, and making technical and editorial changes.

The list of applicable law has been amended to reflect the new *City of Toronto Act, 2006* and changes to the *Planning Act.* The list of applicable law under the Building Code will continue to be reviewed, and further amendments will be implemented where appropriate.

New Planning Act provisions relating to parkland dedication and by-laws under O. Reg. 608/06 (Development Permits) made under the Planning Act are now listed as applicable law. Provisions of the new *City of Toronto Act, 2006* relating to site plan control and the fortification of land are now listed as applicable law.
Minor technical changes include:

- Extending the requirement to facilitate future installation of grab bars in at least one washroom to dwelling units in large residential buildings;
- Removing non-firefighter elevator requirements for certain small care homes; and
- Clarifying requirements regarding the number of people that can be served by one washroom in restaurants, recreation and work camps.

Most of the changes to the 2006 Building Code resulting from O. Reg. 137/07 took effect upon filing. However, changes related to washroom wall reinforcement and the number of required water closets do not come into force until July 1, 2007, and transition provisions are included where an application for a permit is made before October 1, 2007.
Publications Ontario is the official publisher of the 2006 Building Code and the amendment pages. Publications Ontario is preparing update pages for the Compendium Edition of the 2006 Building Code. These update pages will be available for download from the Publications Ontario website (www.publications.serviceontario.ca) shortly. Update pages will also be sent out to subscribers to the amendment update service. For more information, please contact Publications Ontario at 416-326-5300, 1-800-668-9938 or at www.publications.serviceontario.ca. ■

If you have any questions regarding the amending regulation, please contact James Douglas, Manager, Code Development, Legislation and Appeals, Building and Development Branch at 416-585-7174.

New Ontario Fire Code Released

This article was obtained from thge OFM website (www.ofm.gov.on.ca)

TORONTO - June 11, 2007 – Minister of Community Safety and Correctional Services Monte Kwinter has announced the release of Ontario's new edition of the Fire Code to better address Ontario's public fire safety.

"The 2007 Fire Code will give greater scope to owners to introduce innovative building techniques while adhering to strict safety standards," said Minister Kwinter.

The Code was revised using an objective-based format to allow the use of equivalents and innovative solutions through linkages to core code objectives. Approximately 200 technical amendments have also been incorporated into the new Code. Generally however, existing requirements have been retained to provide stakeholders with familiar acceptable solutions and to serve as benchmarks for continued public fire safety. The revised Code will come into effect on November 21, 2007.

"The 2007 Fire Code represents an important milestone with respect to fire safety standards in Ontario," says Ontario Fire Marshal Pat Burke. "It will be an important tool for the Ontario fire service to use because it will ensure that a high standard of public fire safety is maintained in Ontario."

The announcement was made as part of the Ontario Municipal Fire Prevention Officers Association Conference (OMFPOA). The conference took place in Richmond Hill from June 4 to 7 and was an opportunity for fire prevention officers from municipal fire departments across Ontario to discuss public fire safety priorities in the province. A primary responsibility of fire prevention officers is to enforce the Fire Code in their respective communities. ■

Welcome to the following **New Members**

ASSOCIATE
Paul Schwen – Robotronics
Jude Groves

CORPORATE
Secur Fire Protection

CORPORATE 1
Housing Services Inc.

INDIVIDUAL
James (Jim) Burns – CPMS

Mark Thibault – BASF Canada

Lisa Cockerill

Bryan Lindsay – JD Collins Fire Protection

Randy Kalan – Brantford Fire Department

Malcolm Eyre

Cameron McCulloch – Leber Rubes Inc.

Tony D'Amico – City of Toronto

STUDENT
Thomas Hazell

Graeme McIntosh – Seneca College

CFSA SCHEDULED EVENTS

NEW DINNER MEETING FACILITIES:

Delta Markham Hotel **(previously the Radisson Hotel Toronto-Markham)** 50 East Valhalla Drive, Markham
(southeast corner Hwy 7 and Hwy 404)

CFSA EVENTS (TENTATIVE)

October 17, 2007
EVIDENCE GATHERING AUTHORITY
Speaker: Chris Williams

November 21, 2007
(subject to change)
2007 ONTARIO FIRE CODE, THE STRUCTURE AND TECHNICAL CHANGES
Speaker: Krystyna Patterson

January 16, 2008
OBC Parts 10 and 11 - MAINTAINING LIFE SAFETY
Speakers: Leo Grellette and Susan Clarke

February 20, 2008
FIRE SAFETY PLANNING AND ACCESSIBILITY ISSUES
Speaker: TBC

March 19, 2008
ALTERNATIVE SOLUTIONS IN THE OBC AND OFC
Speaker: TBC

OTHER EVENTS

September 23 – 36, 2007
Ontario Association of Building Officials
51st Annual Meeting & Training Sessions
Ottawa, ON

September 23 – 26, 2007
Canadian Association of Fire Chiefs
Fire Fire Rescue Canada 2007
Niagara Falls, ON

October 11 – 13, 2007
2007 Manitoba Emergency Services Conference
MB

National Research Council
Fire Safety Research for Better Building Design – Building Science Insight 2007

October 2, 2007 – Whitehorse
October 4, 2007 - Vancouver
October 30, 2007 – Yellowknife
November 1, 2007 – Edmonton
November 14, 2007 – Iqualit
November 28, 2007 – Winnipeg
November 30, 2007 – Regina
December 11, 2007 – St. Johns
December 13, 2007 – Halifax
January 15, 2008 – Fredricton
January 24, 2008 – Ottawa
February 5, 2008 – Calgary
February 7, 2008 – Toronto
February 19, 2008 – Quebec City
February 21, 2008 - Montreal

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. Your advertisement in the CFSA journal is circulated to CFSA's membership of over 250 professionals in the Fire Safety Industry.

Basic Corporate

Includes 3 individual memberships; Company recognition in each of the four issues of the CFSA journal.

Class 4 Corporate

Same as Basic Corporate as well as a Business Card advertisement in each of the four issues of the CFSA journal.

Class 3 Corporate

Same as Basic Corporate as well as a 1/4 page advertisement in each of the four issues of the CFSA journal.

Class 2 Corporate

Same as Basic Corporate as well as a 1/2 page advertisement in each of the four issues of the CFSA journal.

Class 1 Corporate

Same as Basic Corporate as well as a full page advertisement in each of the four issues of the CFSA journal.

Individual Member: Includes four issues of the CFSA journal, CFSA news and discounted rates at Association functions.

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Associate Member: For individuals and companies located beyond a radius of 500 km from the Greater Toronto Area. Includes four issues of the CFSA journal and discounted rates at Association functions.

Provincial/Territorial Chapter: For groups of members within a province or territory. Includes 4 individual memberships; member rate for all staff at dinner meetings, technical seminars and Annual Education Forum; Recognition in each of the four issues of the CFSA journal. Contributes articles in CFSA journal.

2006 Membership Fees

	Fee	+6% GST	Total
○ Class 4 Corporate	$650.00	$39.00	$689.00
○ Class 3 Corporate	$ 750.00	$45.00	$795.00
○ Class 2 Corporate	$ 925.00	$55.50	$980.50
○ Class 1 Corporate	$ 1,250.00	$75.00	$1,325.00
○ Basic Corporate	$ 375.00	$22.50	$397.50
○ Individual	$75.00	$4.50	$79.50
○ Student	$25.00	$ 1.50	$26.50
○ Associate	$50.00	$ 3.00$	53.00
○ Provincial/Territorial Chapter	$200.00	$ 12.00	$212.00

CFSA Application for Membership

Name _____

Company/Affiliation _____

Address _____

City _____

Prov. _____ Postal Code _____

Business Phone _____

Business Fax _____

E-mail _____

Please indicate how you first heard about CFSA: _____

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

- ○ Architect
- ○ Building Official
- ○ Insurance Industry
- ○ Fire Protection Manufacturer/Supplier
- ○ Building Owner/Developer/Manager
- ○ Other (please specify) _____
- ○ Engineer
- ○ Fire Service
- ○ Fire Consultant

Method of Payment:

❑ Cheque Enclosed $ _____

❑ VISA ❑ MasterCard ❑ AMEX

Account # _____

Expiry Date _____

Signature _____

Please return this completed form with membership fees to:

Canadian Fire Safety Association
2175 Sheppard Avenue East, Suite 310, Toronto, Ontario M2J 1W8
Telephone: (416) 492-9417 • Fax: (416) 491-1670
E-mail: cfsa@taylorenterprises.com • www.canadianfiresafety.com

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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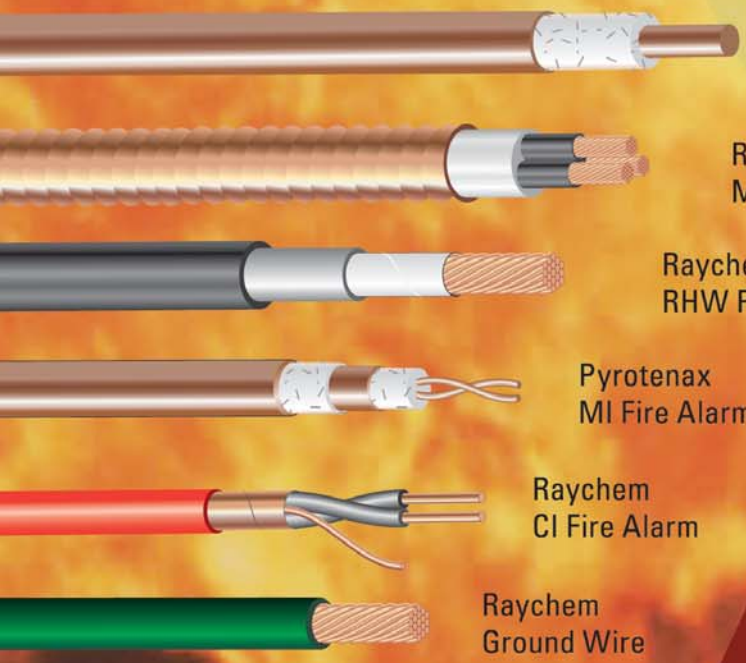

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