CFSANEWS

Fire Safety is Everybody's Business

"Vulnerable Occupancies"

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CFSA NEWS

CANADIAN FIRE SAFETY ASSOCIATION

Fire Safety is Everybody's Business

SPRING/SUMMER 2013

Inside This Issue

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
Back Cover	$250	$750
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1/2 Page	$100	$300
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Business Cards	$25	$75

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

For more information regarding advertising in the CFSA News please contact Mary Lou Murray at (416) 492-9417 or maryloum@taylorenterprises.com.

All general inquiries and advertising materials should be directed to the CFSA Office. We welcome your comments, suggestions and articles. To submit information, please contact us at maryloum@taylorenterprises.com attention of The Editor

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

CFSA Chapters
Interested in forming a new chapter?
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President's Message

What a remarkable time to represent the Canadian Fire Safety Association. On May 9, 2013, Ontario Regulations 150/13 (2007 Fire Code) and 151/13 (2012 Building Code) were filed amending the Building and Fire Codes to introduce substantial changes in order to improve fire safety in facilities that house vulnerable Ontarians. I am fortunate enough to have been directly involved in the Code changes related to vulnerable occupancies by representing the CFSA on the Office of the Fire Marshal's Technical Advisory Committee for Improving Fire Safety for Vulnerable Ontarians. I commend the Office of the Fire Marshal for their speed and efficiency on taking action to respond to the coroner's jury recommendations (released May 25, 2012) resulting from the inquest into the tragedy of the Muskoka Heights Retirement Residence fatal fire in June 2009.

For those who attended the Annual Education Forum, much of the background and reasoning for the changes in the Ontario Building and Fire Codes was touched upon. Our Annual Education Forum was held on April 4, 2013 and was a great success. I would like to take this opportunity to thank the many excellent speakers at the forum as well as our major sponsors for the event; it is with their continued support that this important event is successful.

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. Details of the Annual Education Forum can be found in this edition of the CFSA News.

This year the Board says farewell to Gary Robitaille of LRI Inc. who has stepped down from the CFSA Board of Directors. Gary has been involved with the CFSA for many years, most recently as the Secretary for the CFSA. On behalf of the Board, I would like to thank Gary for his contribution to the CFSA over the years and wish him all the best. That said, I would like to welcome the following new faces to the CFSA Board of Directors:

- Lesley-Anne Coleman of Underwriters Laboratories,
- Karim Gebara of Nadine International Inc., and
- Zahid Rashid of Leber/Rubes Inc.

A special thanks to the Board of Directors for all of their hard work and dedication over the last year and in the upcoming year. The Committee Chairs are already hard at work putting together an exciting program of technical sessions and seminars / workshops for the fall.

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

Matteo Gilfillan, B.A.S., C.E.T., CFPS
CFSA President

2013 Annual Education Forum (AEF) Program

7:30 a.m. – 8:00 a.m.   *Registration and Breakfast*

7:45 a.m. – 8:00 a.m.   *Annual General Meeting*
Speaker: Matteo Gilfillan, CFSA President

8:00 a.m. – 8:15 a.m.   *Welcome Address*
Deputy Fire Chief Gary Fraser, Vaughan Fire & Rescue Services

8:15 a.m. – 8:45 a.m.   Fire Marshal Ted Wieclawek
Vulnerable Occupancies Technical Advisory Committee: A Model of Integration

8:45 a.m. – 9:30 a.m.   Keynote Speaker: Randal Brown
President, Randal Brown & Assoc.
"Resultant Life Safety Effects of Code Changes"

9:30 a.m. – 10:15 a.m.   *Ontario Building Code Update*
Speaker: John Gryffyn, P.Eng.
Ministry of Municipal Affairs and Housing

10:15 a.m. – 10:30 a.m.   *Refreshment break & door prizes*

10:30 a.m. – 11:15 a.m.   *Ontario Fire Code Update*
Speaker: Al Suleman, P.Eng.,
ADFM Technical Services, Office of the Fire Marshal

11:15 a.m. – 12:00 p.m.   *OFM Guideline:*
Staffing Levels for the Emergency Evacuation of Residents in Care Occupancies
Speaker: Kim Bailey, P.Eng.
Fire Protection Engineer, Office of the Fire Marshal

12:00 p.m. – 1:30 p.m.   *LUNCHEON*
Awards
Outdoor Display: Residential Trailer Sprinkler Display
Demonstration Trailer
(Note: Group Demonstration to be held at 1:00 p.m., Announcement will be made)

1:30 p.m. – 2:30 p.m.   *Fire and Building, Working Together*
Speaker: Tom Ruggle,
Chief Fire Prevention Officer, Kitchener Fire Department

Speaker: Robert Schipper,
Manager, Kitchener Building Department

2:30 p.m. – 3:15 p.m.   *Photoluminscent Exit Signage*
Speaker: Lloyd Lawrence,
Thomas & Betts Canada

3:15 p.m. – 3:30 p.m.   *Refreshment break & door prizes*

3:30 p.m. – 4:15 p.m.   *Fire Investigations- Lessons Learned*
Speaker: Chris Williams,
Assistant Deputy Fire Marshal, Fire Investigation Services, Office of the Fire Marshal

4:15 p.m. – 4:30 p.m.   *Grand Draw*

This symposium qualifies for professional development towards NFPA/CFPS Recertification. This Symposium also counts for Self-Directed Learning Points under the OAA Continuing Education Program.

New Members

Student Members

Xiao Li, Carleton University
Zheng Liang, Seneca College

The Canadian Fire Safety Association (CFSA) produces a quarterly News magazine which is distributed electronically to all members and is available for download from the CFSA website.

The CFSA News provides articles on industry related information, updates on codes & standards and overviews of various CFSA educational seminars provided throughout the year. In addition, Corporate Members and their selected representatives are recognized.

Please visit www.canadianfiresafety.com for updates to all upcoming events.

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Vulnerable Occupancies

By: Lesley-Anne Coleman

On April 3rd, 2013, the Canadian Fire Safety Association met for their annual education forum with this year's theme being "Vulnerable Occupancies". A current and very important topic in the industry, the forum provided the opportunity for all interested parties to learn and keep up to date as we work together to improve fire safety in Vulnerable Occupancies.

Deputy Fire Chief Gary Fraser of Vaughan Fire & Rescue Services welcomed the crowd of approx. 150 to the event on behalf of the department. Annually the CFSA holds an education forum which provides fire safety professionals and other industry folks updated knowledge about minimizing and preventing the loss of life and property caused by fire.

The morning began with presentations from Ted Wieclawek, Ontario Fire Marshal, keynote speaker Randal Brown, President, Randal Brown & Associates, updates to the Ontario Fire Code from Al Suleman, P. Eng. Office of the Fire Marshal and the Ontario Building Code by John Gryffyn, P. Eng. Ministry of Municipal Affairs and Housing. Kim Bailey, P. Eng. of the Office of the Fire Marshal shared information regarding the OFM Guideline for staffing levels for emergency evacuation of residents in care occupancies.

Thanks to Toronto Fire Service, the Canadian Automatic Sprinkler Association and the Vaughan Fire & Rescue Services, participants were able to view a residential sprinkler display in the Fire Sprinkler Demonstration Unit.

The speakers for the afternoon included Tom Ruggle, Chief Fire Prevention Officer, Kitchener Fire Department and Robert Schipper, Kitchener Building Department who gave a joint presentation on the importance of working together and shared success displayed by the collaboration of the two services in Kitchener. This was followed by a presentation on Photoluminscent Exit Signage given by Lloyd Lawrence of Thomas & Betts Canada.

Throughout the day, attendees had the opportunity to learn from the various perspectives having to do with national and provincial codes, the importance on putting our focus on codes and standards and improving life safety by working with owners to achieve and apply it. This applies to the importance of code changes to address and ensure fire safety issues in vulnerable occupancies while defining a common understanding of what exactly is a care facility to eliminate gaps preventing tragic incidents such as Muskoka Heights.

The last presentation fittingly summed up the day. A compelling presentation by Chris Williams, Assistant Deputy Fire Marshal, Fire Investigation Services, Office of the Fire Marshal (OFM) shared information on Fire Investigations – Lessons Learned.

Chris shared that the Fire Service, along with the OFM and law enforcement are working together to close the gaps in fire safety. He discussed the three important tactics to help minimize the loss of life and property which are Emergency Response, Fire Safety Standards and Public Fire Safety Education. The Anderson Inquest is an example of this and fire safety education is now being provided to all of Children's Aid to help minimize the risk. Chris spoke of several fires including the one in Sharon which had four fatalities and Muskoka Heights Retirement Residence. It was emphasized that there is an extra need to communicate between the Fire Service and Building Department and through forums such as this we can help mitigate the challenge. Losing four family members to a fire in East Gwillembury, ON the morning of the forum, reiterates the need for assessing risk and fire prevention to be at the forefront of all our efforts.

The forum provided valuable information and gave participants the opportunity to get together, reflect on lessons learned and how they contribute to ensuring fire and life safety in Ontario.

On behalf of the CFSA, we extend our thanks to all of the presenters who took time out of their demanding schedules to take part in our Annual Education Forum and contribute to the success of the event.

The success of the meeting is also dependent on those attending and we extend our appreciation to our CFSA members and each person who was able to attend.

Ontario Fire Marshal (OFM) Guideline
Article provided by: Kailee Houter, Fire Protection Technology Student, Seneca College

The CFSA 2013 Annual Education Forum presented Kim Bailey, a Fire Protection Engineer with the Office of the Fire Marshal who provided information on the staffing levels for the Emergency Evacuation of Residents in Care Occupancies.

One of his main points highlighted that in the event of a fire, the time you have available should be greater or equal to the time it takes to detect the fire and the time required to move residents to a safe place. Here are the five steps mentioned that can help us ensure we have the amount of time we need to evacuate the building in the event of a fire:

1. Identify probable fire scenarios.
2. Find out how long it will take to detect a fire.
3. Find the time it will take for staff to respond to the alarm and move occupants out.
4. Identify the time you can stay in an area, safely away from the fire.
5. Compare the times of steps 2 and 3 to the time you can stay in a safe area (step 4).

Your time required should equal the time to respond to an alarm plus the time to move occupants out of building or to a temporary area of refuge.

Kim provided information on a number of factors that need to be considered when determining evacuation times such as; the time it takes to move residents, are they able to move themselves or do they have limitations, number of residents, time of day, whether it is a vertical or horizontal evacuation, and distance to the nearest exit. All these and more can change the time calculated.

This is why it's importance to have and practice fire drills and have an adequate number of staff available to help. To decrease required response time and move times you can, install heat detectors and smoke detectors, relocate people who cannot walk to lower floors, install zone separations, and increase staff. Installing sprinklers, adding additional zones and installing higher rated fire doors increase the available time.

As Kim Bailey explained, calculating the time you have to safely evacuate residents in care occupancies is of great importance and should be carefully thought out and planned. This way, in the event of a fire you get everyone to a safe place. Times can be changed by increasing staff and making minor changes to the building. In doing this we can insure the safety of both the residents and the staff.

Honeywell | Pull Station Safety

Honeywell Fire Systems is reaching out to make you aware of a potential issue that could affect normal operation of BG-10 Series fire alarm pull stations manufactured from 1992 through 2010. The large majority were manufactured more than a decade ago and distributed under multiple brand names.

The Website, www.PullStationSafety.com, has been created to provide more information on these pull stations, including how to identify BG-10 Series models, pull station pictures, and guidance on the repair and replacement of these devices. We strongly encourage facility owners and fire alarm service providers to visit this site to ensure you can accurately identify any potential BG-10 Series pull stations within the facilities you own or serve.

Click here to visit www.PullStationSafety.com or paste the following URL into your Web browser: http://www.PullStationSafety.com

CFSA: Scholarship Awards

$1,000.00 CFSA Peter Stainsby Award

Presented to the TOP GRADUATE of a 3 year full-time Fire Protection Technology Course, who has excelled with outstanding leadership, motivation and technical skills and an overall academic proficiency.

Winner: Tyler James Oke

$500.00 Stanley Murray Award

photo not available

For continuing Education in the field of Fire Protection.

Winner: Matthew DiDomizio

$1,000.00 CFSA Fire Safety Award 2013 In Memory of Rich Morris

Presented to the TOP STUDENT having completed year 2 of a 3 year full-time Fire Protection Technology Course with outstanding leadership, motivational and technical skills and overall academic proficiency.

Winner: Anna Mielnik

$1,000.00 CFSA LRI (Leber/Rubes Inc.) Award

Presented to a TOP YEAR 2 STUDENT of a 3 year fulltime Fire Protection Technology Course with exceptional overall skills in Fire Alarm System Technology and an academic proficiency > 3.3 GPA

Winner: Hai Li

$1000.00 CFSA Randal Brown & Associates Engineering Ltd. Award

Presented to a TOP YEAR 2 STUDENT of a 3 year fulltime Fire Protection Technology Course with exceptional overall skills in Codes/Standards Technology and an academic proficiency of > 3.3 GPA

Winner: Yingshan Hou

$1,000.00 CFSA Nadine International Inc.

Presented to a TOP YEAR 2 STUDENT of a 3 year fulltime Fire Protection Technology Course with exceptional overall skills in Fire Suppression Technology and an academic proficiency > 3.3 GPA

Winner: Andrew Pisano

$500.00 CFSA Underwriters' Laboratories of Canada Award

Presented to a TOP YEAR 2 STUDENT of a 3 year fulltime Fire Protection Technology Course, with exceptional academic skills in Codes and Standards and an overall proficiency of > 3.3 GPA

Winner: Jason Godard

$500.00 CFSA Underwriters' Laboratories of Canada Award

Presented to a TOP 1ST YEAR STUDENT of a 3 year fulltime Fire Protection Technology Course, with exceptional academic skills in all subjects and a proficiency of >3.3 GPA

Winner: Kailee J. Hunter

$500.00 CFSA City of Markham, Buildings Standards Department Award

Presented to a TOP YEAR 1 STUDENT in Fire Protection Engineering or related Fire and Life Safety Diploma Program and an academic proficiency > 3.3 GPA

Winner: Wei Ning Shi

$1,000.00 CFSA Siemens Canada Ltd. Award

Presented to a TOP YEAR 1 or 2 STUDENT in a Technician or Technology Program with a primary focus on Fire Alarm – Code and design and an academic proficiency > 3.3 GPA

Winner: Lei Dong

Hilda House, Orillia Boarding, Lodging, Rooming House or Dwelling Unit

Article provided by: Kelly Smith, Chief Building Official, City of Orillia

As construction begins on a new project, it is hoped that the end use is well understood and all safety measures have been accounted for in the design. With the Hilda House project, it was difficult to start with such certainty.

The Hilda House project worked thru the planning process under the understanding that these were to be 24 low income, stacked townhouses. Funding for the project was not received as anticipated and the owner decided to expand his options. By the time plans were submitted for a building permit, the project had grown to 2, 3 storey buildings, each containing 12, 2 storey units. Each individual unit contained the following:

- 4 bedrooms
- 1 study room with lockable door and closet
- 1 computer room with lockable door and closet
- 1 dining room with lockable door and closet
- 1 kitchen, 1st level
- 1 eating area, 2nd level
- 2, 2 piece washrooms
- 2, full washrooms
- Living area

The Electrical Plans indicated 7 bedrooms and no study, computer room or dining room. These plans were unlike anything the Chief Building Official (CBO) had ever seen before and was certainly nowhere near what the original intentions of the project had been. The owner insisted that there were to be only 4 bedroom units and the Electrical plans were incorrect.

The CBO had suspicions but was forced to accept the plans at face value. As a cautionary measure the following note was written on the front page of the permit drawings, "Units are classed as Single Family Dwellings. If money or services are received from more than 4 occupants per unit, then the unit becomes classed as a Boarding, Lodging, Rooming House and a different set of Code requirements will be applied." This note was read to the owner by the CBO to ensure he understood what it meant.

While the project was still under construction, City staff were given a brochure that advertised this project as a student residence for Georgian College. The brochure clearly stated that each unit had 7 separate bedrooms for lease. The owner assured the City that these were printed in error and should have only mentioned 4 bedrooms per unit. The CBO considered revoking the permit but was advised by legal counsel that there were no grounds for this as the plans showed 4 bedrooms and until there was evidence of more than 4 living in the units, nothing had changed.

The project was completed and the buildings occupied with a maximum of 4 students per unit. The Occupancy Permits stated this limited occupant load and the owner adhered to it.

The owner then filed papers with the Ontario Superior Court of Justice, challenging the Zoning By-law definition of Boarding, lodging or rooming house and the City's limitation on the occupant load. The case was heard on July 25, 2012 and Justice Healey's decision was released Oct 24, 2012.

The decision read as follows:

"This court orders that judgment shall issue in respect of both applications in the following terms:

1. This court declares that the project located at 248 Hilda Street in the City of Orillia is a stacked townhouse as defined in by-law 2009-156 and permitted in the City's zoning by-law;
2. This court declares that under the terms of the City's zoning by-law, Balmoral can legally rent each townhouse unit to 7 occupants;
3. This court declares that the project is not a boarding, lodging and rooming house pursuant to the City's zoning by-law;
4. This court declares that the buildings as constructed are not boarding, lodging or rooming houses as defined in the Building Code, and as such are not required to comply with the requirements of the Building Code in respect of boarding lodging or rooming houses;
5. This court orders that the City shall issue a final occupancy permit for the project without conditions as to the number of occupants for each unit;"

The City and the CBO could not accept this decision and appealed the Building Code statements. The appeal was heard March 25, 2013. The City won the appeal and final wording of the court order is still to be completed.

Justice Healey and the 3 justices for the court of appeal based their decisions on evidence presented by lawyers. No witnesses were heard. The arguments that helped the City win this appeal were the same as arguments in which other cases have been lost. It all comes down to interpretation of the definitions in the Building Code. These definitions seem to leave too much to interpretation as is revealed by the court cases that are available. Many college and university towns have struggled with how to define how students live. The landlords want to make money, students and parents want affordable housing and municipalities want safe places for these students while keeping their taxpayers happy. The magic wording has not been found yet and it is unclear if we are any closer.

The City of Orillia's Chief Fire Prevention Officer feels that the tenure of the space needs to be considered. Tenure is defined as, "the act, fact, or condition of holding something in one's possession, as real estate or an office; occupation." If you look at how a family lives, there is usually 1 or 2 matriarch's in charge of the whole space with possible dependents living with them. This is not the case with student's living together. This helps to understand the need for added safety features in the construction.

The City's CBO feels that residential occupancies in the Building Code need to be broken down into multiple alpha-numerical classifications for clarity similar to A1, A2, A3 & A4.

Whoever finds the magic wording will help solve many problems that municipalities face regularly and will also save a lot of tax dollars in the process.

CFSA Feature Corner:

Tribute to Rich Morris June 2013

The CFSA News is introducing our "Feature corner". Is there a particular company or colleague you know who has made a significant contribution or difference to the Fire Safety Industry that you want to share? If so, we'd like to hear from you!

In this Edition, we thought it appropriate to start this NEW corner off with a Tribute to Rich Morris – One Year Later.

To submit a write up, please highlight the Individual or Company, contributions made and the impact it's had on the industry or public. All articles should be sent to cfsa@taylorenterprises.com to the attention of "The Editor":

There can be no doubt that the vision and leadership of Rich Morris in the field of fire detection technology, fire prevention and life safety, has resulted in many of the programs and institutions we take for granted today and will live on for many years to come.

As an effective ambassador for fire and life safety, Rich was a leading figure, both locally and internationally, with a proven track record and lifelong commitment to Ontario and Canada. His influence and impact will continue to travel around the world.

The highest NFPA Honour is the Paul C. Lamb Award. This prestigious award is the highest recognition paid by NFPA and was established to honour members whose service to NFPA is a model of voluntary spirit and deed. In 1999, the recipient of that award was our own Rich Morris. They stated; "Mr. Morris epitomizes the spirit of volunteerism both within NFPA and throughout the fire safety industry. As an individual who has given so much of his time, talent and sense of humour, Mr. Morris is most deserving of the Paul C. Lamb Award.

He is a volunteer extraordinaire. From education to engineering, from industry training to codes & standards and from fire service to child fire safety, Mr. Morris has contributed to them all. He truly characterizes the voluntary spirit." Rich was a founding director of the CFSA in 1971. He served three two year terms as President.

Rich was a very humble man. He didn't seek praise or recognition for his great work and many accomplishments. Did you know he had a picture of himself with President Bill Clinton taken in the oval office? I respectfully suggest that the name "Rich Morris" is likely one of the most recognized in fire safety circles in Canada.

Rich Morris was a fine gentleman, a person of strong integrity, a loving and caring family member, a great friend to all and a truly effective ambassador for fire and life safety.

"The world is a safer place because of you..."– Al Speed

ULC Standards
Normes ULC

File: ULC- S561
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March 25, 2013

STANDARDS BULLETIN 2013-08

Second Edition CAN/ULC-S561-13

STANDARD FOR INSTALLATION AND SERVICES FOR FIRE SIGNAL RECEIVING CENTRES AND SYSTEMS

ULC Standards is pleased to announce the publication of the Second Edition CAN/ULC-S561-13, Standard for Installation and Services for Fire Signal Receiving Centres and Systems, published under the date of March, 2013. This National Standard of Canada was processed and approved by the ULC Committee on Fire Alarm and Life Safety Equipment and Systems.

The First Edition of CAN/ULC-S561 was based on ULC/ORD-C693-1994, Requirements of Central Station Fire Protective Signalling Systems and Services. This Second Edition of the Standard has been extensively revised, incorporating published Amendment 1 (2006) and Amendment 2 (2008) of the First Edition. This Edition was also developed to, as much as practicable, harmonize with requirements contained in CAN/ULC-S301, Standard for Central and Monitoring Station Burglar Alarm Systems; CAN/ULC-S304, Standard for Central and Monitoring Station Burglar Alarm Control Units; and CAN/ULC-S559, Standard for Equipment for Fire Signal Receiving Centres and Systems; and to reflect requirements in other fire alarm system standards. CAN/ULC-S561 is currently referenced in the National Building Code and the National Fire Code of Canada.

This Standard covers the construction, operation, installation, inspection and tests applicable to fire signal receiving centres for fire protective signalling services utilizing fire signal receiving centre facilities and satellite centres and bridging centres; construction and operation of a proprietary fire signal receiving centre; and the installation, inspection and tests applicable to fire signal transmitting unit and its field device inputs· at the protected premises.

CAN/ULC-S561-13 is available for purchase at $250.00 for soft copy or $300.00 for hard copy, from the ULC website (www.ulc.ca) ULC online store.

Should you require any additional information, please contact Tess Espejo at (416) 288.2212 or at e-mail address: Theresa.Espejo@ul.com.

Yours truly,
ULC STANDARDS

G. Rae Dulmage
Director, Standards Department, Government Relations Office and External Affairs
171 Nepean Street, Suite 400
Ottawa, Ontario K2P 0B4

File: ULC- S540
        S500F
        G 5.2

ULC Standards
Normes ULC

March 11, 2013

STANDARDS BULLETIN 2013-01

Second Edition CAN/ULC-S540-13

STANDARD FOR RESIDENTIAL FIRE AND LIFE SAFETY WARNING SYSTEMS: INSTALLATION, INSPECTION, TESTING AND MAINTENANCE

ULC Standards is pleased to announce the publication of the Second Edition CAN/ULC-S540-13, Standard for Residential Fire and Life Safety Warning Systems: Installation, Inspection, Testing and Maintenance.

This National Standard of Canada supersedes the First Edition CAN/ULC-S540-M86, Standard for Installation of Residential Fire Warning Systems. The Standard was processed and approved by the ULC Committee on Fire Alarm and Life Safety Equipment and Systems and published under the date of March 2013.

CAN/ULC-S540 provides the minimum requirements for the design, installation, inspection, testing and maintenance of residential fire warning systems for use within dwelling units and care occupancies not requiring fire alarm systems conforming to CAN/ULC-S524, Installation of Fire Alarm Systems. This Standard is intended to apply to both required and voluntary residential fire warning system installations. It specifies how such residential fire warning systems shall be installed to perform their intended functions. It differs from the requirements of CAN/ULC-S552, Standard for the Maintenance and Testing of Smoke Alarms and CAN/ULC-S553, Standard for the Installation of Smoke Alarms, in that it is not intended to apply to the installation, maintenance and testing of single station or multiple station smoke alarms.

This Edition of the Standard was developed in consideration of the requirements of the National Building and Fire Codes of Canada. It is being proposed that by referencing this Standard, Canadian regulations will allow the use of residential fire and life safety warning systems in lieu of interconnected smoke alarms, as they provide additional safety features including but not limited to, electrical supervision of devices; display and supplementary signaling capability; interconnection of heat detectors; monitoring devices and carbon monoxide alarms; residential sprinkler monitoring devices; and furnace and other control features.

Other changes introduced into this Edition of the Standard include:

- Installation requirements for manual stations, audible devices, visible devices, carbon monoxide alarms and residential sprinkler monitoring devices;

- New sections on inspection, testing and maintenance of the residential fire and life safety warning systems; and

- Expanded Appendix providing explanatory guidelines to normative requirements.

CAN/ULC-S540-13 is available for purchase at $176.00 for soft copy or $211.40 for hard copy, from the ULC website (www.ulc.ca) ULC online store.

Should you require additional information, please contact Tess Espejo at (416) 288.2212 or by email at address: Theresa.Espejo@ul.com.

Yours truly,
ULC STANDARDS

G. Rae Dulmage
Director, Standards Department, Government Relations Office and External Affairs
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Ottawa, Ontario K1R 7X6

The "Secret Sauce" in Mass Notification Systems

Taken from the Article by Jason Falbo, P.Eng, M.B.A for FSAI India.

Part 2 of 3:

Further Advantages of Fire Alarm Systems for core Mass Notification

Fire-Alarm systems must be supervised and faults must be reported so timely repairs can be made. Fire alarm systems are combined with various peripherals such as sensors and speakers that are considered "safe" units. In a 'safe unit', regulatory testing is performed to ensure that unit construction will withstand the test of time and internal wiring of the unit does not have to be supervised.

Safe units are verified with their control panel through compatibility testing during the listing phase, and regularly on-site via system inspections done at specified intervals post installation, usually at least one a year. Wiring connecting the speakers to the amplifiers cannot be as easily controlled and will be subjected to variable conditions from job to job. Economic pressures especially during retrofit projects dictate reuse of existing wiring whenever possible, which makes the supervision of speaker supply lines for opens, shorts and ground faults especially important.

Fire alarm systems undergo some of the harshest testing of any products in the world including testing at various environmental conditions including high temperature, low temperature, and high humidity environments, and also they are tested at extremes of supply lines including varying nominal, under, and overvoltage inputs to the system. Fire alarm systems are additionally resistant to supply line transients. Enclosures are tested for quality construction and resistance to electromagnetic interference, and batteries and charging circuitry is evaluated for its potential to meet standards for 24+ hours of battery backup for both lightly and fully loaded system configurations.

Fire alarm systems and their real-time operating systems and dedicated firmware also provide sophisticated scheduling options and advanced logic constructs to allow ultimate programmability and flexibility for system design. Software is guaranteed to perform in a consistent manner without fault and with predictable timing. The software written for Fire Alarm Control Panels often follows standards adopted in other life-safety critical environments including avionics, health-care, and nuclear facilities.

For the reasons mentioned above, mainly the amazing reliability of all hardware, supervision of all external wiring, well designed real-time embedded software routines, and system design and programming flexibility, Fire Alarm Control Panels (FACP) have become the de-facto platforms for Mass Notification Systems. FACP's have distinct advantages over other available solutions such as Paging Systems, PC Based Notification, and Personnel Processes. Some of the pros and cons of each are described below:

Paging Systems.

Most Paging systems will provide high powered amplifiers (500W+) which can in some cases provide cost advantages when installed in large areas such as stadiums and large industrial plants. Paging systems often allow for additional functions such as playing background music in buildings and may use speakers with pleasing aesthetics that suit the décor and architectural design of facilities.

The major disadvantages of strict paging systems are that they are not always supervised and thus are not guaranteed to be working when needed the most. While nice features such as volume controls, on/off switches for various speaker zones, and the ability to play bass really loud to drown out an awful singer's voice may be nice when blasting out rock music at a concert, but they could all cause serious issues when it comes time to play emergency instruction messages intelligibly during an emergency.

Additionally, paging systems are often standalone systems and do not necessarily work in coordinated fashion with other systems that may be used to control safety in an emergency situation. Some codes/standards such as the U.S. Department of Defence's UFC also dictate that mass notification strobes must be active in conjunction with any voice evacuation messaging, and paging systems rarely if ever control strobe appliances.

PC Based Notification.

PC Based Notification Systems can help further the scope of notification since with network cards they employ have access to worldwide networks to publish notifications globally. PCs are a nice way to publish messages locally as well through mediums such as email, text messaging (sms), pop-up windows, screen savers and much more. The input to a PC based notification system is generally a hard-wired (RS-232 or Ethernet Port) or wireless communication interface (Bluetooth or Wi-Fi are common) that connects to a sensor-network controller to a manufacturer specific proprietary or open protocol (such as BACNet, Modbus, LonTalk etc…).

PC Based Notification can be helpful as a "component" of a mass notification system but it cannot be strictly relied upon since the circuitry and wiring of the networks are not dedicated for mass notification/emergency response and therefore the timeliness of the response cannot be guaranteed. Access to requisite resources for processing messages may be hampered by a multi-tasking operating system that may give more cycles other running software that is less critical than the emergency response solution that is trying to get information out quickly and accurately to protect people and property. Although processors have advanced in leaps and bounds in recent years, beyond the PC there are transmission lags such as cellular phone and sms network switches that can only process traffic at pre-defined rates.

Additionally for systems that call out directly to phones, even though instructions may be processed quickly, the actual number of calls that can be made simultaneously will be limited by the number of available trunk lines into any data processing center. It certainly takes minutes and in some cases may take hours to achieve the same widespread notification that may be achieved by a fire alarm/mass notification system combo in only a few seconds.

Phone Trees and Other Human Based Solutions

Phone Trees and Emergency response plans are very valuable and cost-efficient methods of getting information quickly dispersed to interested stakeholders. Believe it or not, it can be estimated that over 80% of organizations rely on phone trees as a primary method for fast dissemination of emergency information. Given the distributed nature of the tree, it may even outperform some PC based phone-out systems given there is no centralized bottleneck for accessing the POTS system. Phone Trees are often accompanied by training of individuals responsible for the coordination of the tree, and require that information "hotlines" be set up for people to receive constant updates as to the current state of the emergency.
Phone trees however also have some severe disadvantages. Like the children's game "broken telephone" the message may be easily corrupted when passed along from human to human, and the time factor for transmission quickly erodes the efficacy of this solution.

Fire Alarms with integrated Mass Notification and Emergency Response Management

The complexity of emergency response management means that no standalone system can provide all the answers to help effectively deal with emergencies on its own. In our experience, we have found that the most sound and reliable solution involves a coordinated effort between the reliable hardware solution (The Fire Alarm/Mass Notification Combination System) and the trained personnel that can effectively manage a pre-organized emergency response plan for a facility.

Having trained personnel and frequent drills ensure prompt response for emergency management. An effective fast response will minimize the negative impact of any emergency event. First responders to events are not always Fire, Police, or other emergency personnel; rather, they are usually building occupants such as yourself who should spend some time ahead of any emergency thinking of how you would respond to some of the following questions.

- How do I know if there is an emergency in my facility?
- Do I know where the nearest exit is in case of fire?
- How do I know if I should immediately evacuate, stay in place, or move to a designated area?
- How could I call for help if my traditional communication tool were offline?
- How could I pass information along such that I may help others based on knowledge I have that others may need?

These questions above and many more all assume the availability of a reliable system (both equipment and processes) that allow for fast, effective, mass notification in the event of emergency. With respect to the equipment then, I present to you what I call "The Secret Sauce" of a reliable mass notification system.

- All equipment must be fully supervised with fault notifications distributed and dealt with in a timely fashion
- All equipment must be fully reliable and guaranteed to perform when its needed the most
- There should be inherent priority within the system that allows for the most important information to get out the fastest, with appropriate overrides in place for required equipment such as speaker circuits or notification displays/signage
- There should be compatibility testing by a recognized independent testing authority for all interfaces that connect sensor controls (Fire Alarm Control Panels) with notification appliances, 3rd party notification systems, or 3rd party reporting systems
- The system must allow for pre-programmed evacuation sequences to avoid human injury and mass chaos during staged evacuation procedures
- The system must have reliable outbound communication interfaces for contacting emergency response teams such as Fire, Police, Military, or Government personnel.
- The system must allow for automatic, preprogrammed emergency messaging that allows for more than one language to be played with sufficient system memory to hold all messages required for effective communication in the specific facility
- The system should have been designed with a simple user interface that allows trained personnel to quickly operate the equipment with its intended function
- The system should allow for input devices such as manual stations or emergency push buttons and notification appliances such as strobes and horn/strobes to be clearly marked and interpreted as appropriate for their application as either inputs to the fire alarm system or the mass notification system. The system should distinguish between the intended-use type of the appliance and use it appropriately in a dedicated sequence for the application type.
- Appropriate priority levels should be configurable in the setup of the system to allow for overriding of low priority notification when higher priority inputs are received. A minimum of two priority levels should be maintained, but many more levels of priority will allow for maximum flexibility in emergency response plan design
- The system should allow for grouping of inputs and outputs as dedicated activity zones (Fire or Mass Notification) and to filter internally the messages displayed on all notification appliances such as LEDs and communication interfaces such as POTS and/or

  IP based dialers

The above list is by no means exhaustive, but it is a basic checklist you can use to ensure that your mass notification and emergency response system meets minimum performance criteria to give you effective protection of people and property.

The Future of Mass Notification

Many people are asking what's next in emergency notification. For many years the Life Safety industry, mocked for our huge metal control boxes and blaring noisemakers, was considered to be behind the times technologically. In recent years with the advances made to support new codes and standards such as for Mass Notification, and through the adoption of new technologies, Life Safety systems manufacturers are leading the way with sophisticated new product offerings including some of the most sophisticated computer systems in the world. Consider for example Mircom's Flex-Net (www.mircom.com/flex-net) Mass Notification System.

- Flex-Net is s dedicated distributed computer network with real-time emergency response for various fire, terrorist, weather or other emergencies
- Flex-Net systems have a logical core that has been developed over 12 years to properly coordinate activities of up to 15 powerful DSPs in a single node, and it has the ability to process inputs from over 5000+ devices and provide over 1500 watts of output in as many as 100 speaker zones
- Flex-Net can integrated with addressable booster power supply networks to provide 300 amps of synchronized strobe signaling power in fewer than 10s from alarm initiation.
- Flex-Net's advanced audio compression algorithms have been implemented to allow for 5 channels of telephony, 1 channel of control, and 3 audio channels over common copper wiring that can be reused on-site in most retrofit applications
- Flex-Net's graphical monitoring and display utility OpenGN (www.mircom.com/opengn) is built on advanced graphics technology that was originally used in military avionics applications and is now used in the most complex 3D modeling applications worldwide
- Flex-Net's various hardware and software has been refined over 10+ years of development and has had to undergo rigourous regulatory testing with bodies including Underwriters Laboratories (UL), Factory Mutual (FM)* to guarantee its reliability at the times it is needed the most.

Note*: FlexNet is currently being tested by FM for new hardware introduced but its predecessor product Mircom's FX-2000 has had FM approval for a number of years.

R&D for the future is focused primarily on creating an entire building ecosystem of systems that can coordinate, communicate, and take cohesive or independent action to manage building environments. Systems will both assist with pre-defined processes and procedures, and work autonomously to self-heal, adjust environmental conditions, and maintain or manage buildings according to pre-defined rules configured for the facility.

Fire Alarm/Mass Notification Systems will augment their core infrastructures by providing multiple proprietary and open protocol interfaces (i.e. BACNet) to support coordinated facility management.

Artificial Intelligence will use publically available and locally created databases to adjust and optimize settings to maximize the comfort, safety, and efficiency of any building.
In creating a technology roadmap for the Life Safety Industry, it makes sense to juxtapose emergency management evolution against the evolution of internet technology in our history.

The Internet

- Point to Point Telephone and Intercom
- Invent of the Personal Computer
- Modems, Telnet and Fax Based Transmission
- Laptops and mobile computers
- Network of Interconnected PCs for data sharing
- Invent of the world wide web and text/html based web pages
- Use of the web for transmitting audio files (the midi and mp3 craze days)
- Video Based Communication (YouTube, Netflix, IP-TV)
- Social Networking (Facebook, Google+, LinkedIn)
- Tablets, Mobile Phones, Integrated Mobile Devices

Fire Alarm Systems

- Point to Point hard wired input and bell circuit
- Invent of the Embedded Microprocessor
- Modems and Dialers to Monitoring Stations
- Analog/Addressable Solutions
- Networked Fire Alarm Systems
- Invent of the 4x20 large character display system
- Addition of voice/audio based communications and notification appliances for FACPs
- *(1) Video Based Real-Time Emergency broadcast network
- *(2) Coordinated Building Systems Network and Artificially Intelligent Building Systems that speak to each other, self-heal, and respond more reliable and efficiently than humans
- *(3) Personal and Customized Emergency Notification

1. Video Based Broadcast Network

Video based emergency communications are the next step in providing real time instruction during emergencies. The idea was made popular in the airline industry for prepping passengers for potential emergency situations 35000ft in the air; however as fire alarm, mass notification, and building communication networks become more sophisticated, it's natural to expect more real-time video streaming as part of an emergency response plan. Pre-recorded videos with evacuation paths, multi-language instruction using captions, and the ability to distribute the building on digital signage networks, existing cable TV networks, computer networks both local and remote to the area of incident, and the...

to distribute the building on digital signage networks, existing cable TV networks, computer networks both local and remote to the area of incident, and the ability to coordinate messaging with off-premise emergency responders make video a natural evolution for mass notification systems.

2. Coordinated Building Systems Network

The web has really changed the way the world looks at systems and systems manufacturers. It is no longer accepted that systems can operate independently, as if on an island, without the ability to interface to and coordinate activities with other systems from either the same or a competitive manufacturer. Life-Safety systems will build on years of experience interfacing with mechanical/HVAC systems for fan and damper control in smoke management applications. In the future, look for the following interfaces to be commonplace:

- Access Control Systems > to open all locked exit doors and ensure a path to safety for all building occupants
- Emergency lighting systems > to turn on all lighting in a building to facilitate evacuations
- Power Systems > to control/shut-down sensitive equipment such as nuclear reactors in the case of facility emergencies
- Regional and National Emergency Response Networks > to provide information required for effective response to terrorist and/or other disastrous events

3. Personal and Customized Emergency Notification

Different people have different requirements and different roles to play in emergencies. Characteristics such as age, ability, mobility, etc. will define the personal support each individual will receive in an emergency in the years to come. Many elderly care residences and hospitals are already riding this trend with personal mobile monitoring devices, sensors, and communications devices that keep patients/residents in touch with emergency care providers 24/7.

The above list is just a small sample of what is possible. Mircom is building our company on the philosophy that buildings should "speak" to their owners. We know that the phrase "within these four walls" is alluding to the fact that each building has a lot to say. We want to give buildings a voice. They should report status, proactively manage their environments to minimize costs, be able to quickly provide information collected via various sensor networks when required for emergency response or other activities and much more. Buildings and facilities house a wealth of information that is not as accessible as it could be for us to better deal various issues we collectively face. With environment leadership in mind, many modern issues such as climate change, ozone depletion, and energy shortages could be addressed with better management of building systems. Migration to large urban centers concentrated around "mega-towers" is evident in many parts of the world especially in the Middle-East and Asia, but also in the USA where there is a sky-scraper renaissance movement underfoot in New...

York City and other major metropolises. New certifications such as LEED® are pushing manufacturers to rethink the possibilities of their designs. Given that life safety systems are already installed in most buildings, they are a logical foundation to support many of these other emerging requirements.

The first priority of life safety systems always has been and will always be life safety. There is an argument that says life safety products should be focused on life safety only, however, the best protection manufacturers can provide against the interference of other systems for emergency management is to be fully intelligent regarding the design and operation of the complementary building systems. Whether these complementary systems are produced in-house, by a partner, or a competitor, the truly important activity is proper integration testing to ensure there is good cooperation in the installed environment. If we fail to plan, we should plan to fail.

Codes and Standards

- UL 864 – Control Units and Accessories for Fire Alarm Systems
- UL 2572 – Control and Communication Units for Mass Notification Systems
- UFC 4-021-01 United Facilities Criteria Design and O&M: Mass Notification Systems
- NFPA 72® 2010 Edition National Fire Alarm and Signaling Code
- NFPA 1600 Standard on Disaster / Emergency Management and Business Continuity Programs
- NFPA 1620 Recommended Practice for Pre-Incident Planning.

Of all the codes and standards mentioned above, the most important for mass notification systems is UL 2572.

UL 2572 Standard for Mass Notification Main Scope

With any emerging technology, there is often a period of innovation whereby technical platforms compete for widespread adoption as a generally accepted solution. One factor that complicates this matter further is that with emerging markets such as mass notification, there are many marketers that want to capitalize on widespread misinformation in the market and promote their proprietary product or service as having the capabilities to satisfy the market need for the specific opportunity.

In most cases, especially where life safety is involved, standards eventually get developed to allow consumers and specifying engineers the peace of mind to know that if a product complies to a specific standard, they can confidently know that there are minimum performance and reliability standards for which the product has been tested to.

The above is true with respect to mass notification systems and underwriters laboratories' new emerging UL 2572 standard (http://ulstandardsinfonet.ul.com/outscope/outscope.asp?fn=2572.html)

....to be continued next edition (Part 3 of 3)

CFSA – Technical Session B44 Elevator Standards & AHJ'S Interpretations Regarding Fire Alarm Installations

By: Sandy Leva

A technical presentation was given by David Sylvester on May 2, 2013.

Mr. David Sylvester spoke on the B44 Elevator Standards & AHJ Interpretations Regarding Fire Alarm Installation. The session was very informative and Mr. Sylvester demonstrated his significant knowledge and insight in this area. Due to high demand, the morning session sold out and an additional afternoon session was added. The presentation was given at the Mircom Group of Companies' head office located in Vaughan, ON.

This presentation is the vehicle for sharpening and developing knowledge on B44 Elevator Standards & AHJ's Interpretations Regarding Fire Alarm Installation. The CFSA technical sessions are not only informative due to the topics presented; they also provide an excellent forum for relationship building and networking among many individuals who are interested in keeping current with changes to the Codes and Standards. To ensure the opportunity to attend, we encourage all interested parties to make attendance at these sessions a priority.

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