CFSA NEWS

CANADIAN FIRE SAFETY ASSOCIATION

Fire Safety in the 21st Century

FALL/WINTER 2016

CFSA

CANADIAN FIRE SAFETY ASSOCIATION

NEWS

Fire Safety in the 21st Century

FALL/WINTER 2016

Inside This Issue

Editor: Lesley-Anne Coleman
The CFSA News Magazine is published 4 times per year: Winter, Spring, Summer and Fall.

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President's Message

I would like to take this opportunity to thank the CFSA membership for electing me as President in our 45th year as an association. The CFSA was established to promote the science and improved methods of fire protection and prevention through the use of seminars, safety training courses and informative newsletters. In 1978 my father Richard (Rich) Morris, a true fire safety pioneer from the 1950's held the position of the association President and today, I am fortunate enough to step into that position 38 years later.

As I reflect on the Aims and Objectives of the CFSA and in particular our seminars, our mission still holds true today as again we held our annual education forum in April and it was another successful event. The event was named "Fire Safety in the 21st Century" The presentations were excellent and very informative. Special thanks go out to Mike Norris and the entire AEF team for organizing a great day.

The CFSA board is made up of a number of dedicated individuals volunteering their time to meet on a regular monthly basis to organize technical training sessions throughout the year. I'm pleased to tell you that the technical committee met recently at ULC to discuss a number of tech sessions planned for the last quarter of the year. I encourage all of our members to participate in letting us know what types of seminars are important to you. We need to keep the conversations going to safeguard ourselves and those we love against the loss of life and property by fire. We are all in this together from the first responders, to the engineers and manufacturers, the Codes and Standards committees, the educators and prevention officers, the servicing companies and the individuals responsible for the properties. Knowledge is power and the fight will be won as a team.

With the many technological advances in the 21st century we are fortunate enough to be able to discuss and share ideas more than ever. With the availability of new products that can assist our fire fighters like video confirmation, a presentation given by Fike, and what the future may look like through the eyes of Fred Leber a presentation by Eric Esselink from LRI, there are an abundance of resources at our fingertips. Continually discussing and staying one step ahead will continue to keep us current and fire safe.

Finally, I would like to thank our Past President Nick Webb for maintaining our direction at the CFSA during his two year term. Over the last 18 years Nick has become a highly respected friend of mine and has provided much appreciated guidance. I look forward to his support over the next two years.

Kindly,
David Morris
CFSA - President

CANADIAN FIRE SAFETY ASSOCIATION
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Mark Your Calendars!

December Technical Session - Dangers of Counterfeit

Wednesday, December 7, 2016 | 8:00 am - 12:00 Noon
Location: Underwriters Laboratories of Canada
7 Underwriters Road, Toronto, ON M1E 3A9

CFSA Annual Education Forum

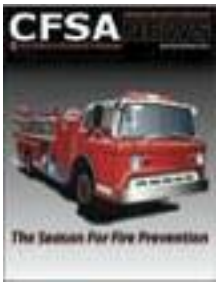
Wednesday, April 5, 2017
Paramount Conference & Event Centre, Woodbridge, ON

PLEASE VISIT WWW.CANADIANFIRESAFETY.COM FOR UPDATES TO ALL UPCOMING EVENTS

CFSA CANADIAN FIRE SAFETY ASSOCIATION NEWS

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.



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Annual Education Meeting - April 7, 2016 Overview

By Catharine Ross

The Canadian Fire Safety Association presented the 2016 Annual Education Forum *"Fire Safety in the 21st Century"* on Thursday April 7, 2016. The various speakers discussed new and current technological developments in fire detection, prevention and suppression. In addition, some presenters discussed current issues and trends within the fire safety industry.

The welcome address given by Darren Lynch, (Chief Fire Prevention Officer, Vaughan Fire & Rescue Services) focused on the importance of residential sprinklers and supporting the need for them in rapidly developing communities like Vaughan. As well, he discussed protecting the senior citizen population within the varying types of residences and care facilities geared toward this specific population (senior apartments, retirement homes and long-term care). With the increase in protection from fire code and subsequent retrofit, some buildings fall through the cracks in the system for a variety of reasons. This gap is alarming as it demonstrates the priority needed to address such fire safety concerns by the care providers and the fire safety industry in order to avoid tragedy and the larger complex issues governing vulnerable occupancies.

Speakers during the day focused on developments in fire protection technology including Shipboard Automated firefighting robots (SAFFiR) by Fred Leber, Video Fire Detection (Rick Jefferies-Fike Corporation) and New NFPSA Hybrid Water Mist and Inert Gas Standard – efficient new technology that is safe for the environment (Marco Polidor, Victaulic). These types of technological developments help to demonstrate the advances in fire protection engineering and may be key in limiting personal injuries and property damage.

Speakers during the day focused on developments in fire protection technology ... These types of technological developments help to demonstrate the advances in fire protection engineering and may be key in limiting personal injuries and property damage.

Other areas of fire safety, presented by speakers were interesting in the discussion modern day issues. Commissioning of buildings (Megan Todd-Jensen Hughes) which focused on the value and benefits of commissioning for the life span of the building, also integrated verification testing so that systems communicate with each other. Combustible insulation, how it relates to what you have in your building and what you need for protection and relation to codes.

The Ontario Professional Engineers License new changes as of July 1, 2016, will allow holders to take full responsibility of work and certification. Under this new designation, licences will be able to seal, submit drawings. It is still very new and not well known however will include fire-engineering safety, which, while not considered its own discipline could be a subset of mechanical/electrical engineering.

Before lunch, the CFSA scholarships were awarded to the top students in a Fire Protection technician, technology program, University Degree, or related Fire and Life Safety program. Ten awards totalling $8500 were given to nine students, all of whom are students currently enrolled in the Seneca College Fire Protection Engineering Technician and Technology program. Congratulations to all on your well-deserved awards.

Over the past few years, some spectacular fires, along with rescues, during the construction of wood building. Fire safety during construction of five and six storey wood buildings is a focus within the best practise guideline. It is a response to OBC changes construction site fires, which is a hazard to workers and adjacent buildings. This guideline underlines the importance of training, drills, extinguisher use, and pre fire planning emergency and notification systems. Another key point is to bring

continued…

Annual Education Meeting Overview Cont'd

sprinklers into service as soon as possible during the construction process to help mitigate fire hazards. Protocol and procedures within this guideline stressed a no smoking policy, equipment heating, hot work. The overall message in this presentation is to instill a culture of safety, its everyone's role establish through training, and changing construction site procedures.

Of interest to all attendees was the Case study of interconnected floor spaces and alternative solutions.

Of interest to all attendees was the Case study of interconnected floor spaces and alternative solutions, given by Melinda Amador of Jenson Hughes. Atrium Space (3.2.8.2-11 in the Ontario Building Code) requires a 2 hour fire rating, however to meet the design needs of the Nordstrom store, which required 3 levels with a central escalator, and open space to view to the retail floor. In order to achieve this, the alternative solution used Fire curtain by stoebich. This technology when not in use is inconspicuously in the ceiling above the designated protected area meets the intent and requirements of the Ontario Building Code, while balancing with interior designs of the high-end retailer.

Nancy McDonald-Duncan (Mississauga Fire & Emergency Services) discussed Inspections and enforcement discussed the inspection process, the right of entry case law criminal code, immediate threat to life case law and evidence in such situations. This is key when inspectors have to uphold the legislation of the Fire Prevention Protection Act. ◆

Canadian Fire Safety Association 2016 SCHOLARSHIP WINNERS

- **$1,000.00 CFSA Founders Award for Leadership & Excellence**

  Damiano Ottaviani
  Presented to the TOP GRADUATE of a 3 year full time Fire Protection Technology or University degree, who has demonstrated leadership qualities including a balance of academic excellence, outstanding leadership, motivation and community service. The applicant should excel in displaying outstanding leadership, display motivation and contribute to the fire safety community, achieve academic and technical skills to impact the fire safety community and outstanding concern for others/volunteerism.

- **$1,000.00 CFSA Fire Safety Award 2015 In Memory of Rich Morris**

  Taylor Hugentobler
  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 ≥ 3.3 GPA.

- **$1,000.00 CFSA LRI Engineering Inc. Award**

  Vanessa Cuglietta
  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.

- **$1,000.00 CFSA JENSEN HUGHES Consulting Canada Award**

  Kathryn Schramm
  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 ≥ 3.3 GPA.

- **$1,000.00 CFSA Nadine International Inc.**

  Jiangou Ding
  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.

- **$500.00 CFSA Underwriters' Laboratories of Canada Award**

  Kathryn Schramm
  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 ≥ 3.3 GPA.

- **$500.00 CFSA Underwriters' Laboratories of Canada Award**

  Shiqi Zhao
  Presented to a TOP YEAR 1 STUDENT of a 3 year full-time Fire Protection Technology Course, with exceptional academic skills in all subjects and an overall proficiency ≥ 3.3 GPA.

- **$500.00 CFSA City of Markham, Buildings Standards Department Award**

  Joseph Vrschuuren
  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.

- **$1,000.00 CFSA Siemens Canada Ltd. Award**

  Adam Thomas
  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.

- **$1,000.00 CFSA Aon Fire Protection Engineering Award**

  Kaitlyn Hunt
  Presented to a TOP YEAR 1 or 2 STUDENT in a Technician or Technology Program with a primary focus on Sprinkler Technology – Code and Design and an academic proficiency ≥ 3.3 GPA.

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Annual Education Forum

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Wednesday April 5, 2017

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National Engineering Month - Event Write-up and Reflection Seneca Fire Protection Student Association

For this year's National Engineering Month Seneca College School of Fire Protection and the Fire Protection Student Association (FPSA) hosted two back to back events. The first event was the 4th annual career fair, in which representatives from Fire Protection Engineering organizations throughout North Ameria came to Seneca College, Newnham Campus. This was an excellent opportunity for students to engage with industry professionals to speak about the many careers in the Fire Protection Engineering field. The event suited this year's NEM theme "There is a Place for You" very well, as students had the opportunity to explore where they fit best in this diverse segment of engineering.

The second event was the FPSA – Industry Dinner, which continued to connect students and industry professional. Only now in a dinner setting, allowing for more comprehensive conversation. The main features of this event were the two guest speakers, Shawn Simons and Alvaro Llanos. Shawn and Alvaro told their incredible story of fire survival, and life after the fire. This event suited the NEM messaging key "Safety, health, happiness, Make a world of difference" perfectly. It showed the importance of fire protection engineering, and allowed for discussion on how tragic events like the fire they were involved in can be prevented in the future.

Through these events the Fire Protection Student Association was able to achieve the goals of National Engineering Month. "NEM is an opportunity for youth to learn about many disciplines of

Cathie Ross – President of the Seneca Fire Protection Student Association, giving opening remarks at the FPSA – Industry Dinner Event

engineering and allow them to see where their skill set and interests are best fitted." What better way to do this then a career fair, where students can speak to fire protection engineers first-hand. This year's career fair hosted 25 plus organizations. This allowed hundreds of students the opportunity to discuss their interests and skills with future employees, to ultimately figure out how they best fit in the fire protection engineering field. Following the career fair, the FPSA – Industry Dinner carried these same goals. This event allowed for more in-depth conversations between the 175 plus guests. The two guest speakers Shawn and Alvaro captivated the audience, and left everyone in a loss for words with their story. The fire they were involved in, occurred at a university in their residence building. Therefore, the presentation was recorded so it can later be view by Seneca residences, to promote safety, health and happiness.

This event will be hard to top next year however, the future date is already set for the 5th Annual Career Fair and Networking Dinner. Mark your calendars for March 16th 2017. For more information please contact Scott Pugsley, Professor and Industry Coordinator at Phone: 416-491-5050 x 22525 or Email Scott.pugsley@senecacollege.ca

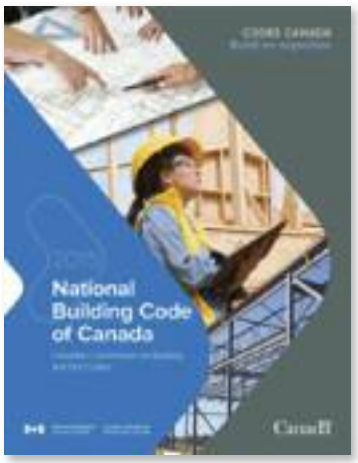
Since the creation of this Article, the student group was awarded 2nd place in the National Engineering Month College Challenge. For Seneca Fire (Student association) That's a 2nd in 2016, 8th in 2015, and 3rd in 2014. ◆

Panorama view of the 175 plus guests at the FPSA – Industry Dinner. In attendance were fire protection engineering industry professionals, students, alumni and others.

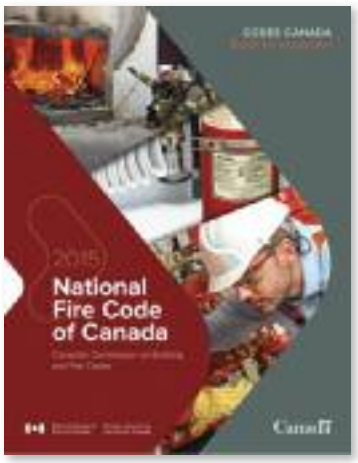
Six-storey Combustible Construction Now Permitted

National Research Council

The 2015 editions of the National Building Code (NBC) and the National Fire Code (NFC) now permit construction of six-storey buildings using traditional combustible materials (i.e., wood products). In the past, the Codes limited this type of construction to four storeys. The changes, 34 in the NBC and eight in the NFC, were developed in collaboration with industry, provincial authorities, fire services, research organizations, general interest groups and consultants in an effort to address their safety concerns.



The changes add limitations for building size and construction relative to the respective occupancy categories for residential (Group C) and business/personal services (Group D). They also incorporate additional protection measures to address the risk of injury due to fire and structural collapse in both the finished building and during construction.



Newly approved building types use passive and active protection measures based on concepts that are commonly found in other building types and that are addressed throughout the Codes. Passive protection measures include building height and floor area limitations and street access to a greater percentage of the building perimeter. Active protection is provided through automatic sprinkler systems installed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems. Even exterior balconies will now require sprinkler protection to reduce the risk of fire spread upward from one floor to the next through the surface of the exterior wall assembly. The physical dimensions of six-storey combustible buildings (including the roof) are also limited, allowing fire services access to as much of the building as possible.

Special attention has been given to the protection of these buildings during construction before the planned fire protection features, such as gypsum board, have been installed. Simple changes—such as signage for stair identification and labelling of street addresses—will help first responders shorten their response time. Enhanced fencing, boarding and barricades are also required to secure the construction site against unauthorized entry and arson, a major cause of fires in buildings under construction.

Occupancy combinations

The new code requirements for six-storey combustible buildings allow for a broad selection of mixed occupancies while restricting combinations that could introduce an unacceptable level of risk. Mercantile occupancies, as well as a subset of assembly occupancies, are permitted to accommodate stores, shops, restaurants, schools and community halls within the first two storeys. Parking garages are allowed underground and up to the third storey in order to account for increasingly common building design for mixed-use, residential buildings that also house businesses. High-risk industrial occupancies—such as chemical manufacturing, spray-painting operations, and bulk-storage of hazardous substances—are not permitted.

The response from the provinces and territories to these new building requirements has been positive. British Columbia, Alberta, Quebec and Ontario already have provisions in their latest provincial codes that allow construction of six-storey combustible buildings. British Columbia has allowed six-storey residential construction since 2009, with over 250 projects now built or near completion. ◆

Changes in Parts 3, 4 and 5 of NBC 2015

National Research Council

Updating of accessibility requirements in Part 3

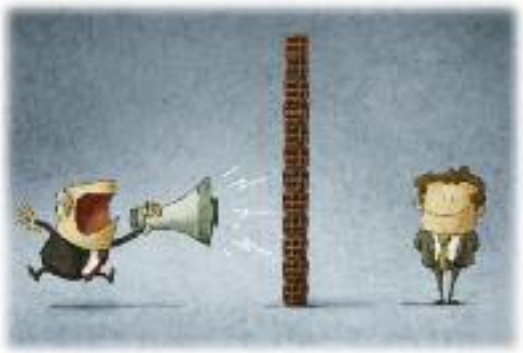
According to the 2012 Canadian Survey on Disability, 14% of Canadians and one in three seniors report having a disability that limits their daily activities. With Canada's aging population, the demand for accessible facilities in buildings will continue to increase. Code requirements in Section 3.8. are therefore aligned with current knowledge on accessibility and the design improved for accessible routes, doorways, controls and washroom facilities. Design requirements now include the option of complying with CSA-B651, "Accessible Design for the Built Environment." These changes have little to no cost impact over the NBC 2010 requirements.

New hazard values for seismic design in Part 4 & Appendix C

The seismic hazard values for 679 geographic locations in Appendix C are updated based on recent earthquake data, to provide a better estimate of the actual seismic hazard. In NBC 2010, buildings at locations where the hazard was lower than a threshold value specified in the Code did not require seismic design. This exemption is withdrawn and now all buildings in Canada will be designed for earthquake forces regardless of the level of hazard. A new simplified approach is provided exclusively for low-hazard locations as an alternate to a complex seismic design. Other changes for seismic design requirements in Part 4 include introducing base isolation and supplemental damping systems especially relevant for retrofit projects, new cost-saving provisions for seismic design of large single-storey steel buildings, new requirements for buildings with inclined columns, and requirements to prevent breakage and falling of glass.

New metric for sound transmission in Part 5

Apparent Sound Transmission Class (ASTC) is introduced into Parts 5 and 9 to assess compliance with noise protection requirements between dwelling units. The new metric more accurately captures the sound level perceived by occupants as it also accounts for the noise transmitted through flanking walls, ceilings and floors. It will facilitate design optimization and shift the focus from separating walls, which tend to be over-designed, to the more critical wall-to-wall and wall-to-floor junctions, thereby resulting in more comfortable conditions for occupants and fewer complaints about noise.



The new provision requires a minimum ASTC rating of 47 between dwelling units. Compliance with this rating can be demonstrated by measurements on site, following prescriptive requirements, or by calculation and design. For the third compliance option, designers have at their disposal two publicly available tools; an explanatory guide and the web-application soundPATHS, developed by NRC's Acoustics Group. The latter tool allows designers to identify areas of overdesign, weak links, and the potential for cost savings. ◆

Changes in Part 9 of NBC 2015

National Research Council

This article summarizes the most significant changes affecting housing and small buildings in the 2015 NBC.

Almost half the changes to Part 9 impact stairs, ramps, handrails and guards. Some increase design options; for example, the NBC will permit additional stair configurations, including flights with a mix of tapered and rectangular treads in dwelling units, and spiral stairs when used as secondary stairs or where they serve not more than three people. Other more stringent requirements include a provision for continuous handrails throughout the length of a stair flight and at changes in direction in stairs serving more than one dwelling unit, in order to improve the safety of occupants using them.

Step dimensions

A key change for stairs increases the run dimension of a step inside houses from the current minimum of 210 mm to a new minimum of 255 mm. A cost-benefit analysis showed that increasing the minimum run to 255 mm was the most cost-effective option for typical construction. This change could reduce fall incidences by up to 64% and aligns NBC requirements with international codes while providing a better foot placement and greater stability for occupants.

Balustrades

There is little evidence that people (especially children) fall as a result of the decorative design of balustrades. More decorative elements are now permitted where guards protect occupants from an elevation difference of 4.2 m or less. This change increases design choices for builders and manufacturers of guards while maintaining a minimum level of safety for occupants.

Lateral Resistance

New prescriptive requirements introduced into Part 9 complement changes in Part 4 and Appendix C dealing with earthquake loads and effects. Part 9 provisions require additional lateral resistance for housing and small buildings depending on the earthquake hazard for their location and avoid the need for a professional engineering design, even in areas where design to Part 4 was previously required.

Reference standards

Many significant changes in NBC 2015 relate to referenced standards. For example, a large number of new roofing, dampproofing and waterproofing standards replace the outdated versions. A set of three new standards governing materials, installation and design of Exterior Insulating Finishing Systems (EIFS) is referenced for the first time in Part 9. Reference to the concrete material standard is qualified to maintain the minimum strength requirements for concrete.

It should also be noted that Section 9.36. of NBC 2010, Energy Efficiency, was published in 2012 as an interim change to NBC 2010 and has already been adopted by many jurisdictions. This section will be part of NBC 2015 from the start. ◆

Change of Use and Application of the Building Code and Fire Codes in Ontario

Mike Norris, Abedini Norris Consulting Inc.

Navigating the building code and fire code during a change in use can be changeling. If these codes are not applied properly, inspection orders or requests for items that are not considered a violation of the Fire Code may result.

In some recent instances, owners have been requested to apply for a change of use when no change in the use of the building has occurred. The only thing that changed was the definitions in the most recent building code. Specifically, these requests have occurred for buildings constructed as a Group C Residential Occupancy used as retirement homes. In the current Ontario Building Code, a retirement home would be classified as a Group B Division 3 care occupancy. Letters were issued stating the chief fire official deemed the occupancy of the building to be a Group B Division 3 based on Article 2.1.2.1 of the Ontario Fire Code (OFC).

OFC Article 2.1.2.1 states, "For the purpose of applying this Code, a building or part thereof shall be classified according to its major occupancy by the Chief Fire Official in conformance with the Building Code".

Although the chief fire official has the ability to classify or reclassify a building, Such reclassification must be in conformance with the "building code" as defined in the fire code and does not naturally mean that the chief fire official can use the most recent adopted building code. The fire code defines the term building code as follows:

> *Building Code means any version of the Ontario Building Code that was in force at any time since it was made under The Building Code Act, 1974, the Building Code Act of the Revised Statutes of Ontario, 1980, the Building Code Act of the Revised Statutes of Ontario, 1990, the Building Code Act, 1992 or a successor to the Building Code Act, 1992, and, where a specific version of the Building Code is referred to, that version of the Building Code.*

In addition, definition of the term "building code" the Fire Protection and Prevention Act 1997 States under subsection 22.(1) &(2) the follow conditions and use of appropriate building code(s):

> (1) No inspector shall make an order under clause 21 (1) (b) requiring repairs or alterations to a building, structure or premises that was constructed in compliance with the building code established under the Building Code Act, 1992 or under a predecessor to that Act and that continues to comply with that code as it existed at the time of construction, unless the order is necessary to ensure compliance with the provisions of the fire code relating to the retrofitting of existing buildings.
>
> (2) If repairs, alterations or installations are carried out in compliance with an order made under subsection 21 (1) or for the purposes of complying with the fire code, the repairs, alterations or installations shall be deemed not to contravene the building code established under the Building Code Act, 1992.

Accordingly, the "building code" as defined by the fire code is the building code that was applicable at the time of construction. This can only include more recent versions of the building code where a specific version of the building code is referred to under the fire code or if the construction was to the current edition of the building code, as may be the case if there were major renovations. The fire code only specifically refers to the 1986, 1990 and 1994 Ontario Building Codes. Furthermore, if repairs or alterations are carried out under the fire code, they do not need to meet the current building code. Over the past several years, Ontario has made some significant changes to the building code by introducing a new occupancy classification for Group B Division 3, which is generally considered for new retirement homes. In previous editions of the building code, retirement homes were classified differently.

continued…

Change of Use and Application Cont'd

1990 Building Code

In the 1990 Ontario Building Code, Group B Occupancies were defined as institutional occupancies. When the 1990 Ontario Building Code was in effect, a retirement home would have generally been classified a Group C residential occupancy; the institutional requirements were much more restricting then needed for a retirement home. Below are the definitions of institutional and residential occupancies from the 1990 Ontario Building Code.

The 1990 Ontario Building Code lists the occupancy descriptions under Group C (residential) as apartments, boarding houses / group homes and retirement homes. The occupancy descriptions listed under Group B Division 2 are hospitals, nursing home, geriatric and sanatoriums.

1997 Building Code

In the 1997 Ontario Building Code, the definition for Group B occupancies were not limited to institutional occupancies and included the newly defined terms of care and detention. At the time, a retirement home would have still generally been classified a Group C residential occupancy, as the care and detention requirements were much more restricting than needed for a retirement home.

2006 / 2012 Building Code

In 2006, the Ontario Building Code introduced the occupancy classification for the Group B, Division 3 occupancy. The 2006 definition for the Group B3 occupancy is generally the same as the current 2012 OBC. Currently, a retirement home would not be permitted to be constructed as a Group C residential occupancy; the Building would be classified as a Group B3 or B2.

When looking at an existing retirement home (in existence prior to 2006), the building would be considered a Group C retirement home if no changes have been made since originally constructed. As an example, if the building was constructed as an apartment building and any time after 2006 the building was changed to a retirement home, then a change of use would be a justifiable requirement. ◆

Rural Fire Protection Water Supply

Mike Norris, Abedini Norris Consulting Inc.

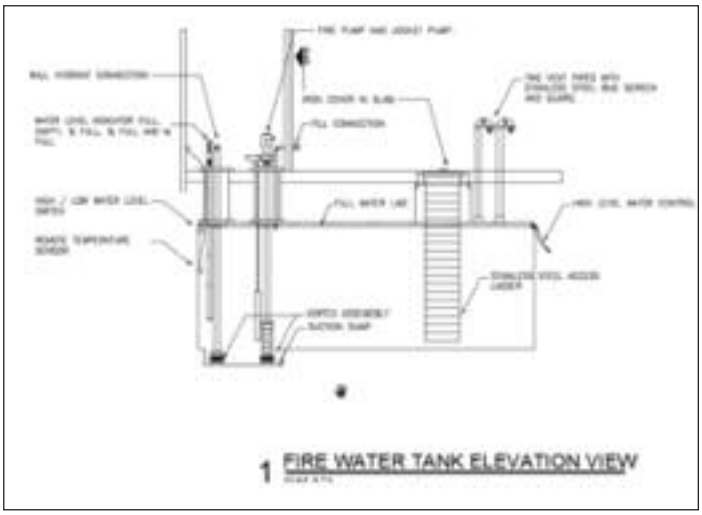
Having an adequate water supply is not often a challenge when working in urban areas with robust municipal water services. Rural municipalities, on the other hand, may have limited water supplies.

Water storage in rural areas may be able to meet the daily demand for normal domestic use, such as drinking water, washing dishes, showering etc. However, rural water supplies may not be adequate to meet fire flow requirements (flow rate of duration).

The 2012 Ontario Building Code (OBC) requires an adequate water supply for firefighting to be provided for every building. The review of adequate water supply is generally subject to the guidelines provided in Appendix A of the OBC. The total volume of fire water required is based on the use of a building, the volume of the building and distance away from neighboring buildings to estimate the potential size of fire. Where buildings are protected with automatic sprinklers and the hydraulic calculations include the hose stream allowances described in NFPA 13 Standard for the Design and Installation of Sprinkler Systems, additional on-site water is not required.

During a proposed building extension of a rural pet food processing building in Ontario, one of the project tasks was to determine the required on-site firefighting water needed for the renovation project. The building had undergone a number of renovations and extensions over its life to accommodate the business as it grew. The facility had limited drawings of the existing structure. Given the number of additions and lacking detailed building plans, it would have required a significant amount of time to conduct the necessary on-site surveys to determine the volume of the building and hence the required fire flow.

When a renovation or building extension occurs, the new portion of the building is required to meet the current Building Code, and the existing portions of the building are permitted to use the compliance alternatives outlined in Part 11 (“renovations”) of the Code. For the existing portion of the pet food processing building, the compliance alternatives in Part 11 accepts the existing water supply since the building did not



change to higher hazard occupancy. Since the new building extension was going to be protected with sprinklers, the review of the adequate on-site water was permitted to be limited to the building extension only.

The underground existing water mains serving the facility were not adequate to supply the new sprinkler demand. A water storage tank was provided as part of the design to satisfy the sprinkler system requirements. Since the facility is located in a climate with low winter temperatures, the design needed to include provision to prevent the water from freezing.

The two most common options to provide freeze protection for water tanks are either to insulate the tank and provide a heater or bury the tank below the frost line. For the pet food processing facility, an underground concrete tank was selected as it did not require emergency power to protect the tank from freezing.

Concrete was selected for the construction of the tank since it could be manufactured by local workers onsite and water proofed with an epoxy coating. The concreate tank construction also allowed for the architect to design the fire pump room above one end of the tank. ◆

NFPA NEWS RELEASE

National Fire Protection Association (NFPA) released updated **Emergency Evacuation Planning Guide for People with Disabilities May 31, 2016** – In an emergency evacuation, people with disabilities face significant challenges that building owners and occupants must seriously consider and plan for.

The second edition of the National Fire Protection Association's (NFPA) Emergency Evacuation Planning Guide for People with Disabilities, which was officially released in June, addresses the main evacuation elements needed for the disabled community. The new guide is free and accessible online, and features updated statistics, graphics, photos and links. It also includes an expanded, more detailed checklist for the personal evacuation planning process.

"The updated guide reflects fire and life safety advocates' collective commitment to providing the disabled community with the latest information, guidance and resources needed to safely evacuate an occupancy in an emergency evacuation," said Allan Fraser, senior specialist for NFPA's Building Fire Protection division. "In particular, we've incorporated increased accessibility to the guide, including technologies that allow screen readers who are blind or low vision to access content online."

With input from NFPA's Disability Access Review and Advisory Committee (DARAC) and other nationally recognized advocates, the guide was originally created in 2007 to create a comprehensive evacuation planning strategy for the disabled community that establishes the needs, criteria and minimum information necessary for proper planning. Identifying general categories of disabilities (mobility, visual, hearing, speech and cognitive impairments), the guide outlines the four elements of evacuation that occupants need in the event of an emergency: notification; way finding; use of the way; and assistance.

"Accessibility among the disabled community is a relatively recent subject that we've begun to address in fire and building codes, but it's one we must continue to proactively focus on, so that we can fully meet the safety needs of people with disabilities," said Fraser. "Moving forward, we plan to update the guide more frequently with timely updates and information that reflect the continually changing and evolving built environments in which we all work and live."

About the National Fire Protection Association (NFPA)
Founded in 1896, NFPA is a global, nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. The association delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach and advocacy; and by partnering with others who share an interest in furthering the NFPA mission. For more information visit www.nfpa.org. All NFPA codes and standards can be viewed online for free at www.nfpa.org/freeaccess.

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For immediate release publicaffairs@nfpa.org ◆

NO. 30

WHO SPEAKS FOR LIFE SAFETY?

Following the publication of the 13th addition of the National Fire Protection Association's FIRE PROTECTION HANDBOOK in 1969, the NFPA followed up with the publication of the extracts from letters of endorsements for the work. Many voiced the opinion that the current 2,000 page edition of this well known handbook was by far the most comprehensive of the line.

However, the very first thing I did when I received my copy was to start counting pages. This may seem an odd thing to do – especially when there are 2,000 pages to count. But what I was trying to determine in my own way was how much of the handbook was devoted to the life safety aspects of fire technology.

I feel that there are two sides of fire protection – property protection and life protection. So I sat down and in my own way determined how much of this volume was actually devoted to fire life safety. By my account, approximately 60 pages, or roughly ½ of 1% of the handbook was oriented toward the life problem. I list the following sections as being primarily life oriented:

1. Chapter 1, page 1-23, "Loss of Fire by Fire" (A statistical summary – 23 pages)
2. Chapter 4, pages 32-37, "Products of Combustion and Their Effects on Life Safety" (6 pages)
3. Chapter 8, page 5, "Life Safety in Buildings" (one-half page)
4. Chapter 8, pages 179-198, "Exits" (20 pages)

But my disappointment with the 13th addition reflected more than the results of a page count. I felt that even those sections which were specifically intended to deal with life problems missed the mark. For example, the statistical section (23 pages) told us how many people died in past fires. It's interesting, but hardly a solution. The section on combustion products told us that smoke kills, but not much more.

The other 20 odd pages were almost exclusively directed toward exits as a solution to fire. In fact, on page 5 of Chapter 8, NFPA states, "THE PRINCIPAL CONCERN IN DESIGNING FOR LIFE SAFETY IS THE PROVISION OF ADEQUATE EXITS SO THAT OCCUPANTS CAN LEAVE THE BUILDING IN THE LEAST POSSIBLE TIME AFTER DISCOVERY AND NOTIFICATION OF THE FIRE THROUGH WAYS FREE FROM FIRE, HEAT AND SMOKE".

This superficial approach completely misses key facts of life – such as hospital patients who are nonmobile, confined elderly people who are not mentally capable of a response to danger, and sleeping children who die in bed from fire gases without ever awakening to the danger. It is clear from a study of the very few sections of the handbook specifically dealing with the life problem that NFPA advocates an *exit* as the *primary* solution to the life problem. Aside from this somewhat irrelevant treatment the NFPA handbook is virtually a desert of ideas on life safety.

Now, of course, one can thumb through other sections of the handbook and find features, such as certain structural requirements having some pertinence, or a paragraph or two on sprinklers saying they are good for saving lives. But all of this impresses me as being a very tiny, insignificant, spin off from the primary concern – protecting property.

Isn't property protection secondary to the life problem? Should one have to search through the handbook for bits of information on the life problem?

If the NFPA handbook is, as the publisher implies, a modern up-to-date summary of all of our fire safety knowledge, then it would seem to me that large segments would be devoted to deep and penetrating analyses of the fire problem as it concerns human life. Where are the in depth analyses of the life problem? Where are the meaningful solutions to the dwelling problem? Where is the driving concern for converting sprinklers and fire

Patton Report
A PUBLICATION DEDICATED TO HUMAN FIRE SAFETY
Published Bimonthly, 6 Issues Per Year By Patton Protection Systems, Inc., Alameda Plaza, Tucson, Arizona 85701

detectors into better life saving tools? Where are the solutions to smoke spread in buildings?

WHO DOES NFPA SPEAK FOR?

In 1895 a group of stock fire insurance men met in the Boston office of the Underwriters Bureau of New England and out of this meeting grew the National Fire Protection Association. The NFPA was established by the insurance industry to write fire protection standards for the fire insurance industry. They have fulfilled this function over the intervening years.

I have no quarrel with the right of the fire insurance industry to develop standards as aids in the conduct of their business. But, if the NFPA now represents itself as a completely independent, public-spirited, nonprofit organization, and if its standards are adopted as legal requirements by governmental bodies (as they are) don't we have the right to ask these questions:

1. Is NFPA truly independent, or is it still functioning as an extension of the fire insurance industry?
2. Are the NFPA activities insurance and property oriented at the expense of fire life safety considerations?
3. Are NFPA standards properly oriented for legal adoption?
4. If NFPA does not adequately promote human life fire safety, then who does?

INSURANCE INFLUENCE ON NFPA

After many years of close association with both NFPA and some of the traditional fire insurers and state rating bureaus (Insurance Services Offices) it is my conviction that NFPA *is indeed* captive of (or at least unduly influenced by) a segment of the insurance industry. I further believe that the policies being followed represent outdated thinking and actually are not in the best interests of the insurance industry as a whole. I believe the present concepts of fire safety are especially detrimental to the liability insurers and multi-peril insurers. Here is why.

Fire destroys both property and lives and both affect insurance. The traditional fire insurers pay the property losses. But today when major loss of life occurs lawsuits are levied against the liability insurers. The size of the lawsuit over human loss can make the property fire loss look insignificant. So if the present fire safety standards are predominantly oriented toward property protection, with inadequate concern for the life problem, I believe it is vital to overall insurance industry interests that this be corrected.

Here are some of the factors which I consider important to the ability of the old line fire insurers to influence NFPA excessively.

1. There are four classes in NFPA membership, but only one, the restrictive "Organizational Membership" carries six votes in the "affairs of the association" (NFPA). All other forms of membership carry only a single vote. Of the 185 Organizational Members, 53 are insurance entities.
2. The property insurers are organized, reasonably united, and consider the promulgation of fire protection standards as essential to the conduct of their business. All other groups represented in NFPA are either small or disunited and generally have relatively little intreest in the promulgation of standards. Many are simply watch dogs taking care that they are not seriously harmed by any new requirements, but otherwise passive. Thus, the insurers represent the only strong voice within the NFPA.
3. In 1972 seven out of seventeen men on the NFPA board of directors were insurance men. Insurance men dominate many of the other important committees. Non-insurance company members to committees often are technically weak in fire safety matters and vote on a rubber stamp basis, except when guarding their own special interests. I further have the impression that committee membership is controlled to the extent that there is not too much of a "rocking of the boat" problem.
4. The publishing of standards is a main source of income for NFPA. The insurance industry provides the bodies to serve on the committee so that the standards can be promulgated, and the insurance industry also represents a chief market for the published standards. If the insurers completely withdrew their support of NFPA I doubt that NFPA would be a going concern six months later.

In my opinion, all of these factors tend to lock the NFPA into an old line fire insurance company oriented emphasis on property protection. I feel that the life safety aspects of fire technology are being dangerously ignored.

A TIGHTLY CONTROLLED STANDARD

Let us assume that a conflict developed between NFPA and its insurance supporters. Could NFPA operate in an independent manner, or would the insurers have the ability to bend NFPA to their will? I believe that there has been a conflict of this nature for some years now and if I read the signs correctly the NFPA has not been able to achieve independence. The conflict has been in connection with the sprinkler standard, No. 13.

Many people in the fire profession consider sprinklers to be the key to life safety in structures. The reasoning behind this belief is simple. There is no way to construct a building so that combustible interior furnishings cannot burn. Obviously, the

people who are directly exposed to the interior fire and/or gases can be killed. Therefore, life safety requires more than a building code, it requires a solution to the interior fire problem.

Thus, for years there has been an interest on the part of those who are concerned with life safety to revise the sprinkler requirements so that these systems would be applicable to residential and institutional structures.

This philosophy of fire safety, that the sprinkler system is the key to saving lives, is not novel or new. It is probably safe to say that the vast majority of those in the fire services (Fire Chiefs, Fire Marshals) fully support this concept, and have done so for years.

However, the fire insurance men have consistently held that sprinkler design must be maintained the province of the insurers, and that the requirements must be structured as they see necessary for the industrial risk.

And so, there has been a conflict within NFPA. I have personally written to NFPA, as far back as 1965, asking that the hold the insurers have on the sprinkler committee would be broken. But let us look at the facts.

In March of 1964, Dave Warren of the Kaiser Company, wrote in his NEWSLETTER FOR FIRE PROTECTION ENGINEERS IN INDUSTRY, the following:

> "Did you know that the NFPA Committee on automatic sprinklers is composed 72% of persons employed by the insurance industry? If you combine those working in the sprinkler manufacturing industry the figure rises to 90%. In organizations of our acquaintance, this amounts to a controlling interest. It is our opinion that better representation should be secured from the consumer – the man who pays the bills. How about it NFPA?"

Despite this "open letter" to NFPA, the many further efforts on the part of Dave Warren, and myself, and many others, we have not yet been able to break the hold of the fire insurers on this sprinkler committee. As of the latest listing I have, the insurance representation has dropped from its 1964 level, but the insurance representation is still approximately 50% which is more than enough to control the requirements.

Now let us look at this situation from a view of its total ramifications. From the NFPA viewpoint it is extremely important that they maintain an impression of being an independent standards making body working purely in the public interest. When NFPA permits a key committee to be dominated by one industry, this strikes right at the heart of the public interest facade. It is contrary to the organization's own policies of structuring committees. Theoredically, any standard that is "loaded" in favor of one special interest group should be automatically disqualified for adoption by all legal entities and code enforcing organizations.

Thus, in its ability to dominate the NFPA sprinkler committee, and thwart the desires of those who want to see a greater role for sprinklers for protecting human life, it would seem that the fire insurers are demonstrating an ability to control NFPA itself in a manner that must be very damaging to the overall interests of NFPA.

Is this apparent ability of fire insurers to dominate NFPA being manifest in other areas?

Does it explain why the NFPA "Life Safety Code" (NFPA 101) is structure oriented rather than directed toward protecting human life from the interior fire. (I consider NFPA 101 to be an excellent formula for building land based battleships complete with "fireproof" bulkheads in lieu of the "watertight" bulkheads usual to the ocean going variety.)

If NFPA does not have the ability to function effectively in the area of life safety from fire, should we look elsewhere?

WHO WILL DO THE JOB?
But where do we look?

The fire services, in my opinion, rank number one in having a tremendous desire to improve life safety from fire. But so far they have played a very minor role in the NFPA code making operation and have not become united and dynamic in support of their beliefs.

The model code organizations and the state and city building authorities have concentrated on building codes, and have left the fire prevention standards, including the fire detection and sprinkler regulations, and most other fire safety activities in the hands of NFPA. Building codes are very limited in their ability to deal with the interior combustible content fire that is the chief killer of people.

The Federal Government could be a very dynamic force. But the government seems to have a pervasive desire for absolute uniformity in safety matters – a desire for a single master building code, if you will. How do you convince the government that absolute uniformity is the very worst thing? History proves that the ability to innovate and create is the secret of progress – but there is nothing that is more deadly to creativity than absolute federal controls. There are many bureaucrats in the Federal Government who want standards to enforce – *any standards to enforce* – and they want the power that goes with such enforcement regardless of the long term consequences of such controls.

Fire Safety in the 21st Century - Looking Back 30 Years! Cont'd

I have heard that the National Safety Council has a "gentlemen's agreement" with NFPA to the effect that fire is the province of NFPA. Whether or not this is true, for whatever reason, the NSC has been very colorless in fire safety matters.

The ASTM is potentially a force in the fire safety field – but I believe they look too much to fire tests of building assemblies, and too little to the human tolerance for fire.

There are other organizations that also have functions in the fire safety field. But I believe that all of them tend to follow the lead of NFPA.

I would like to see each organization that has an interest in fire life safety pursue its own course. The government likes uniformity. I believe in originality. An ability to try something new, an ability to do something different and unique, is the prime requisite of progress in all fields of human endeavor, including safety.

I would like to see everyone speak for human fire safety – each in his own way.

I would like to see an era of almost total domination of the fire safety field by one organization and its supporters come to an end.

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- Have a three-foot “kid-free zone” around open fires and space heaters.
- Never use your oven to heat your home.
- Have a qualified professional install stationary space heating equipment, water heaters or central heating equipment according to the local codes and manufacturer’s instructions.
- Have heating equipment and chimneys cleaned and inspected every year by a qualified professional.
- Remember to turn portable heaters off when leaving the room or going to bed.
- Always use the right kind of fuel, specified by the manufacturer, for fuel burning space heaters.
- Make sure the fireplace has a sturdy screen to stop sparks from flying into the room. Ashes should be cool before putting them in a metal container. Keep the container a safe distance away from your home.
- Test smoke alarms at least once a month.

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THE SCHOLARSHIPS:

★ **$1,000.00 - CFSA Founders Award for Leadership & Excellence**
Presented to the TOP GRADUATE of a 3 year full time Fire Protection Technology or University degree, who has demonstrated leadership qualities including a balance of academic excellence, outstanding leadership, motivation and community service. The applicant should excel in displaying outstanding leadership, display motivation and contribute to the fire safety community, achieve academic and technical skills to impact the fire safety community and outstanding concern for others/volunteerism.

★ **$1,000.00 CFSA Fire Safety Award 2015 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 ≥ 3.3 GPA.

★ **$1,000.00 CFSA LRI Engineering 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.

★ **$1,000.00 CFSA JENSEN HUGHES Consulting Canada 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 ≥ 3.3 GPA.

★ **$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.

★ **$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 ≥ 3.3 GPA.

★ **$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.

★ **$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.

★ **$1,000.00 CFSA Aon Fire Protection Engineering Award**
Presented to a TOP YEAR 1 or 2 STUDENT in a Technician or Technology Program with a primary focus on Sprinkler Technology – Code and Design and an academic proficiency ≥ 3.3 GPA.

QUALIFICATIONS AND RULES:

1) The recipients must be enrolled in a Fire Protection Technology Course at a Canadian college or university.

2) All CFSA Scholarship Award entries (c/w academic grades) must be submitted by March 18th to: Attention: 2016 Scholarship Form, Canadian Fire Safety Association, 2800 14th Avenue Suite 210, Markham, ON L3R 0E4

3) Submit a written response of up to 300 words in paragraph form, providing a brief description of:
   a. Your interest in fire safety and knowledge of CFSA and the donor organization,
   b. The course you are enrolled in and how you would like to utilize your education (ie. fire service, consulting, sales etc.)
   c. Any experience you have in fire safety either work related, attendance at conferences, CFSA functions etc. and a statement on your extracurricular involvement (i.e. student clubs, mentoring, tutoring, athletics & community volunteering)
   d. Letter of Reference from faculty about individual.

4) All entries become the property of the CFSA. The awards ceremony will take place on April 7, 2016 at the CFSA Annual Education Forum. All award recipients are encouraged to attend the full day CFSA Education Forum, as a guest of the CFSA and its distinguished Scholarship Sponsors.

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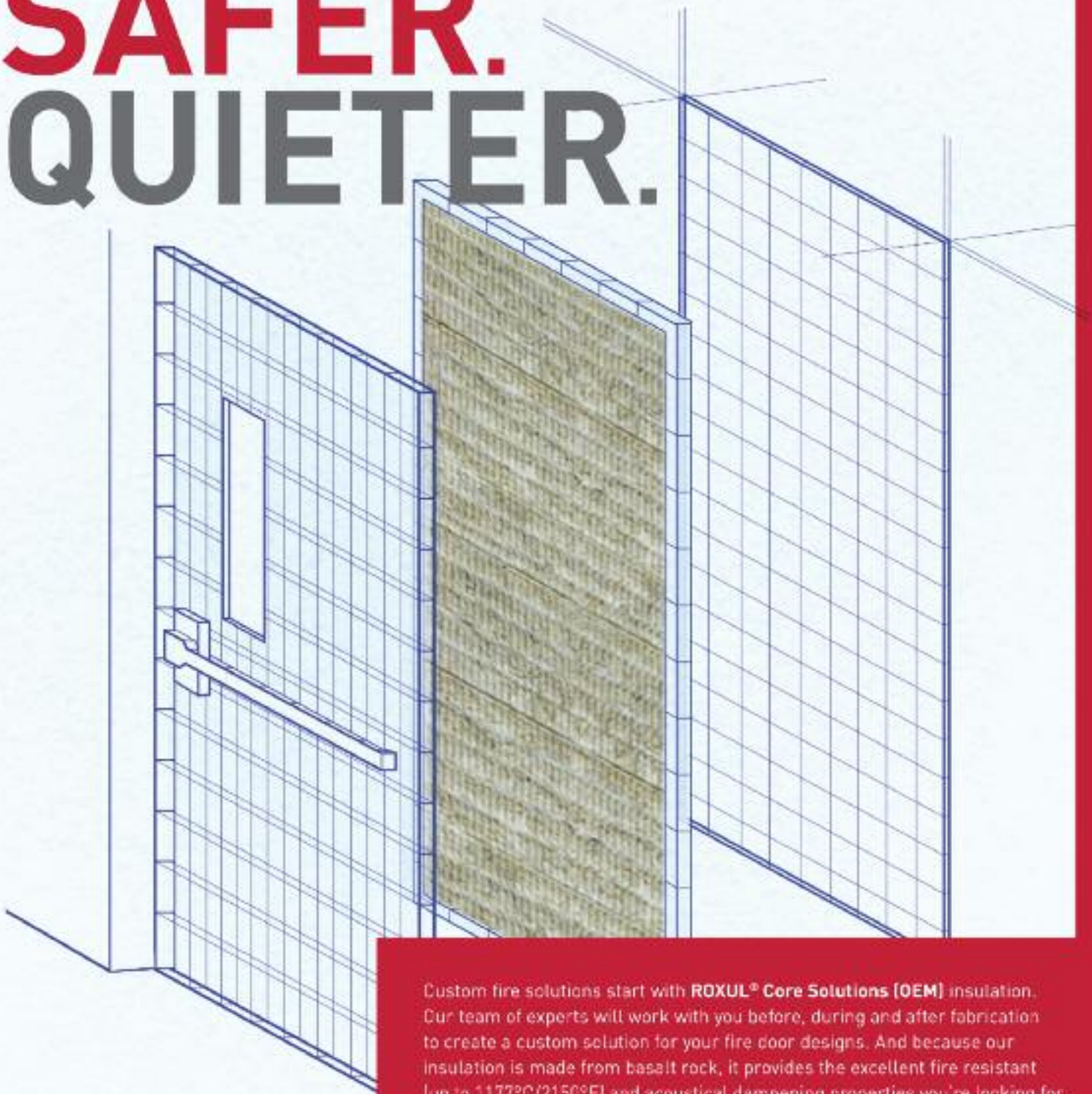

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