

# CFSA NEWS

CANADIAN FIRE SAFETY ASSOCIATION



*Fire Safety is Everybody's Business*

1971 - 2021

SUMMER 2021

## Existing Buildings - Design

A study to determine the minimum level of life safety and building performance





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**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

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During our recent Annual General Meeting this past June, our various committee Chairs' all provided their annual reports for the respective areas. For those members that missed this meeting the reports are located within the members' area of our website. Three areas of highlight would be the work within the Scholarship committee, Public Education committee and Education forum committee.

Within each of these committees we have seen growth, challenges and numerous changes all based on our new operations because of Covid-19. We are proud to showcase the 2021 scholarship winners again in this issue of the Canadian Fire Safety Association (CFSA) – Newsletter. With many associations seeing a decline in donations and support for their scholarship programs, we are happy to report that the trend is the opposite for the CFSA. We have recently added more awards to support Canadian Fire Protection students.

Additionally, the CFSA Board of Directors (BOD) voted to extend all existing student memberships regardless of the status of their College program in an effort to support students both directly and indirectly. This membership extension will continue until the end of the 2022 school year. New students will be accepted within our normal Student member program for 2021-2022. Details can be found here <https://canadianfiresafety.com/members>.

Our Public Education committee continues to work hard to provide meaningful monthly Technical Sessions for our members. These sessions are open for all members, students, and non-members also. A current schedule can be found online, with archived copies of past presentations and recording (for members only). Our committee and the CFSA DOB believes strongly that we should be providing not only more training for members but to also work with our related industry associations to form partnerships to help with improved training collaboration and enhanced overall membership benefits. This work has begun already with CFAA, IFE and we look forward to working with our other brother and sister associations later this year. Training related articles are also frequently found in our CFSA – Newsletter and within this issue you will find articles on Existing Buildings, alterations and applying new Building Code; Covid 19 Response – Building Code; Lessons learned from the Surfside Condominium Collapse; Selling Fire Safety. If you are interested in submitting an article please contact [Newsletter@CanadianFireSafety.com](mailto:Newsletter@CanadianFireSafety.com)

As part of our ongoing training and education efforts, there is no better time to discuss our fully Online Annual Education Forum scheduled for Sept 21st and 22nd. This year's session will span two half-days and allow attendee's to participate within our new immersive event platform. With live Q&A, chat and sponsor exhibit areas we are planning to have a great series of presentations without the hassle of commuting, parking, or being out of the office for too long. Current information can also be found online also at <https://canadianfiresafety.com/events>

I would also like to announce three new members to our CFSA - Board of Directors. Please join me in welcoming Allena Goodyear, LRI Engineering Inc; Andrew Sorgenfrei, Ontario Fire Prevention Services; and David Dilliot, Chathan-Kent Fire Protection to the BOD for 2021-2022. During our next full BOD meeting we will be making new Director assignments within each of our various committees and I know that we are all looking to continue the great progress forward with some new support and talent.

Be sure to follow or connect with us using Twitter @CFSA\_NextGen along with @CFSA\_Canada. Please feel free to contact me at any time [President@CanadianFireSafety.com](mailto:President@CanadianFireSafety.com)

Stay safe,

Scott Pugsley  
CFSA President



**CANADIAN FIRE SAFETY ASSOCIATION**  
**ASSOCIATION CANADIENNE DE SÉCURITÉ INCENDIE**

1971 - 2021

## What is The CFSA?

The Canadian Fire Safety Association is a non-profit organization established in 1971, to promote fire safety through the use of seminars, safety training courses, information newsletters, scholarships, and regular meetings.

## Our Mission Statement

“To disseminate fire and life safety information and promote a fire safe environment in Canada.”

[www.canadianfiresafety.com](http://www.canadianfiresafety.com)

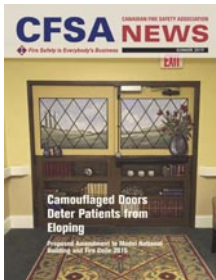
# CFSA NEWS

CANADIAN FIRE SAFETY ASSOCIATION

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.

Click on a cover below to view that issue online ...



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 Seneca College  
 416-491-5050 ext. 22525 | [scott.pugsley@senecacollege.ca](mailto:scott.pugsley@senecacollege.ca)

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 Firetronics 2000 Inc.  
 905-470-7723 | [davidmorris@firetronics.ca](mailto:davidmorris@firetronics.ca)

**1st VICE-PRESIDENT:** Anthony Rago  
 Jensen Hughes  
 647-557-3671 | [arago@jensenhughes.com](mailto:arago@jensenhughes.com)

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 416-757-5250 ext. 61521 | [sandy.a.leva@ul.com](mailto:sandy.a.leva@ul.com)

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 Innovative Fire Inc.  
 416-221-0093 | [ocarroll@innovativefire.com](mailto:ocarroll@innovativefire.com)

**SECRETARY:** Alex Yarmoluk  
 ARENCON Inc.  
 905-615-1774 # 230 | [ayarmoluk@arencon.com](mailto:ayarmoluk@arencon.com)

### DIRECTORS

Lesley-Anne Coleman [NEWSLETTER]  
 Toronto Fire Services  
 416-338-9376 | [lesleyann.coleman@toronto.ca](mailto:lesleyann.coleman@toronto.ca)

David Dilliot  
 Chathan-Kent Fire Protection  
 519-359-5077 | [ddilliot.sca@gmail.com](mailto:ddilliot.sca@gmail.com)

Allena Goodyear  
 LRI Engineering Inc.  
 416-515-9331 | [agoodyear@lrfire.com](mailto:agoodyear@lrfire.com)

Kathryn Schramm [SCHOLARSHIP]  
 Barrie Fire & Emergency Service  
 705-739-4220 ext. 3228 | [Kate.Schramm@barrie.ca](mailto:Kate.Schramm@barrie.ca)

Andrew Sorgenfrei  
 Ontario Fire Prevention Services  
 905-401-5094 | [ontfireprevention@gmail.com](mailto:ontfireprevention@gmail.com)

### CFSA OFFICE

2800 14th Avenue, Suite 210, Markham, ON L3R 0E4  
 416-492-9417 | Fax: 416-491-1670

**ADMINISTRATION:** Melonie Hart  
[operations@canadianfiresafety.com](mailto:operations@canadianfiresafety.com)

**EVENT COORDINATOR:** Rachel Gilmour  
[rachel@associationconcepts.ca](mailto:rachel@associationconcepts.ca)

# Existing Buildings-Design

## (A study to determine the minimum level of life safety and building performance)

<sup>i</sup> Avinash Gupta, P.Eng., CBCO, CRBO, LBO  
Dominic Esposito, P.Eng.

### Background

The construction industry contribution to the total Gross Domestic Product (GDP) is a predominant indicator in measuring the country's general economic and financial health. According to Statistics Canada Table: 36-10-0434-03 (formerly CANSIM 379-0031), investment in construction varied between 120.344 billion dollars in 2010 to 141.131 billion dollars in 2019, and as a GDP, it fluctuated between 7.41% and 7.16% for the same years. The construction activities' investment was 144.554 billion dollars (8.01% GDP), with a maximum in 2014.

According to the Canadian Home Builders' Association's (CHBA) report, Economic Impacts of Home Renovation and Repair (CHBA 2018), there were 699,064 jobs, 42.5 billion dollars in wages and 81.6 billion dollars in investment generated through home renovation and repair in Canada in 2018. In comparison, the economic impacts related to new construction were lower. In 2018, new construction generated 566,472 jobs, 34.4 billion dollars in wages and 79.2 billion dollars in investment value (CHBA 2018).

According to the Angus Reid poll commissioned by CIBC in May 2017, Canadian homeowners have an appetite for spending \$11,800 on average to improve and renovate to arrest 'wear and tear.' Similar trends are expected in commercial buildings.

The above data shows that the building

*The views expressed by the authors are for generating an objective, transparent, nonpartisan, agile, and science-based debate to arrest unpredictability on alterations to existing buildings. among all the stakeholders.*

industry has an appetite to improve the building industry's economic potential further by doing alterations to existing buildings and, this is feasible, provided sufficient and appropriate regulatory measures are readily available in the Model National Building and Fire Codes of Canada (Codes). Design and construction provisions for alterations to existing buildings are not available in the current Codes.

This article discusses Canada's landscape with respect to the Building Code application to alterations to existing buildings.

### How are Existing Buildings Addressed?

As of today, ten of the thirteen provinces and territories adopt or adapt the Model National Codes and provinces like Ontario, British Columbia, and Québec have their own unique building and fire codes. However, most prescriptions published by these three provinces are identical to the Model National Construction Codes (Model Codes), and therefore, design and construction details specified in the Model Codes are of utmost relevance. The provinces and territories are actively seeking to harmonize the Construction

Codes across Canada. This process has begun and is expected to be completed in the next few years.

The Model National Building Code (NBC) establishes minimum standards for the construction and occupancy of all new buildings, reconstruction, demolition, removal and relocation of buildings, additions to existing buildings, alterations, and change of use. It also applies to both site-built and factory-constructed buildings, tents and air-supported structures. After the adoption or adaption of NBC, it sets minimum provisions, standards, and regulations for matters for buildings such as fire and life safety, structural sufficiency, public health, accessibility for persons with disabilities, and energy efficiency. NBC has a commentary with respect to alterations to existing buildings and states that the application of NBC requires judgement.

It is evident from the above factual narrative; the current NBC does not deal with all aspects of existing buildings and, therefore, does not include the definition of an existing building.

Ontario and Québec have included provisions for existing buildings within the body of their Construction Codes. In

*The absence of definitive requirements for existing buildings in the current NBC is resulting in a subjective, inconsistent, and discretionary approach in dealing with alterations to buildings across Canada, creating confusion among regulators, professionals, consultants, and building owners, thus resulting in potentially unsafe buildings.*

In addition, the City of Vancouver has also incorporated provisions for existing buildings in its municipal bylaw. As stated earlier, the majority (77%) of the provinces and territories adopt or adapt NBC, and therefore, the absence of definitive requirements for existing buildings in the current NBC is resulting in a subjective, inconsistent, and discretionary approach in dealing with alterations to buildings across Canada. The capricious and arbitrary practice creates confusion among regulators, professionals, consultants, and building owners, resulting in potentially unsafe buildings.

For writing this educational piece, professionals, building officials, and Authorities Having Jurisdiction (AHJs) working in the building industry were consulted to understand the methodology practiced for alterations/additions to existing buildings. Interestingly, none of the consulted persons talked about the performance level or hazard level or how to reduce the current Codes' performance gap to existing buildings. The building officials' primary objective appeared to be to meet the current Construction Code (e.g., NBC), ignoring the cost of doing so in terms of material, labour, time, and compliance. There are doubts and misconceptions across provinces and territories due to the lack of a comprehensive regulatory framework.

### **Application of the Current NBC to Existing Buildings**

It is not the intent of either NBC or the National Fire Code (NFC-where NBC is

referenced) to enforce the retrospective application of new requirements to existing buildings or existing portions of relocated buildings, unless specifically required by local regulations or bylaws.

The principal objective of alterations, renovations or change of use in existing buildings should be to close the performance gap between the current Codes and existing buildings. This principle aims to emphasize that the current Codes cannot be applied to existing buildings that are not undergoing renovations, alterations or modifications and where there is no change of use of an existing building. If the provisions of the current Code are applied to an existing building for the occupants' safety, judgement is to be used, and cost analysis of implementing a requirement relative to the overall Code objectives is to be evaluated. A cost analysis is required to conclude that the regulatory measures applied to an existing building

are reasonable, pragmatic, feasible, useful, and practical. Cost analysis is a crucial step when an existing building fully complied with the Code in force at the time of construction, and where there are no evident problems with the basic life safety provided.

As per the Canadian Commission on Building and Fire Codes (CCBFC) report on 'Alterations to Existing Buildings (CCBFC report)', it has been recommended to address 'alterations to existing buildings' as a new Part within the body of NBC (e.g., Part 10) and Model National Energy Code for Buildings (NECB) (e.g., Part 9). Part 10 of NBC will apply to both large and complex buildings (Part 3); and housing and small buildings (Part 9). One of the advantages of including Part 10 in NBC is that NBC's specific requirements will be taken as mandatory and not merely guidelines. The other benefits are its accessibility, acceptability, creditability, legitimacy, and consistency among professionals, building officials, and owners across Canada. However, the focus of this educational article is Part 10 of NBC.

According to the CCBFC report, the extent of mandatory requirements should focus primarily on Code requirements that are cost-effective for the type of alteration being undertaken. For example, when undertaking an addition

*Ontario, Québec and the City of Vancouver have conclusive prescriptions for dealing with existing buildings and have defined the term existing building in their respective Codes. Deciding if a building is an existing building should be prescriptively defined, similar to determining if the building is to be designed as per Parts 3, 4, 5 and 6 or Part 9 of NBC. Thus, it is recommended to consider including the definition of the term 'existing building' in NBC for consistency and elude subjectivity; its non-inclusion will be like a smartphone of credence without a sim card.*

to an existing building, it would be reasonable that most, if not all, current Code requirements apply to the addition. However, where there is no change of use or change of the building's major occupancy after the addition to an existing building, the current Code is to be applied to the addition and not to the entire building. The existing building is required to be evaluated to a limited extent to demonstrate that the addition does not reduce the performance level of the existing building.

During discussions with one of the known structural professional engineers, it was expressed that in a case of addition that includes major or minor alterations to an existing structure, the whole building's structural system is to comply with "Commentary L-Application of NBC Part 4 of Division B for the Structural Evaluation and Upgrading of Existing Buildings". Few building officials contacted expressed similar views, however, without any data or reference. The CCBFC report does not offer specific guidance for addressing an existing building's structural components.

In the view of the authors of this article, the structural components of an existing building undergoing an alteration, addition or change of use should not be gauged from the prism of structural engineering only. Instead, existing buildings should be examined to confirm that the performance level is not reduced after alteration, addition, or change of use.

It is also essential that the current "Commentary L" be considered for re-writing in simple language with standard empirical formulae so that the AHJs can apply it without the germane understanding of structural engineering.

As per all the references readily available, when there is an alteration to an existing or portion or component of an existing building, the Code of the day shall be applied to that portion or component of the building cautiously, as explained above. Given the farrago of

distorted information prevailing in the building industry and the diverse understandings between structural engineers and building officials, the CCBFC should navigate to marinate and resolve the anomaly between the diagonally opposite views.

### What is an Existing Building?

Determination of what an existing building is, is a compelling first step in analyzing a building as the provisions applied to an existing building are typically less onerous than those applied to a new building. The potential of wrongful application of provisions is quite heavy in the absence of existing building definition.

The current NBC does not define the term existing building. However, as per NBC Note A-1.1.1.1.(1), a relocated building that has been existing for a number of years can be considered as an existing building.

The references listed below provide additional guidance on the determination of what is an existing building:

- As per Ontario Building Code (OBC), buildings or parts of buildings that have been in existence for at least five years are considered existing buildings. Parts 10 and 11 of the OBC deal with changes of use and renovations to existing buildings.
- As per Québec Construction Code, Chapter I – Building, and National Building Code of Canada 2010 (amended) (QCC), every building under alteration, maintenance or repair that has been built for not less than five years is subject to Part 10, Existing Buildings under Alteration, Maintenance, or Repair of this Code.
- According to the Vancouver Building Bylaw (VBBL), existing building means a building lawfully constructed and completed under a permit before submission of the current permit application. Part 11 of the VBBL deals with existing buildings.
- As per Uniform Building Accessibility

Standards Regulations of Saskatchewan, existing building means a building on which construction was commenced or completed prior to June 6, 1988, or for which a valid building permit was issued pursuant to a bylaw of the appropriate local authority prior to June 6, 1988.

- As per Northwest Territories policy, a building already existing on the date the new edition of NBC became effective is considered an existing building. However, to be considered an existing building, the building's age has to be greater than five years from the date of occupying it for the first time or the date on which an occupancy permit was granted. In cases where partial occupancy is granted by the AHJ pending compliance to the building's notified deficiencies, the building's age should be determined from the date of fully complying with the notified deficiencies.

In addition, as per NFPA, a building erected or officially authorized prior to the effective date of adoption of this edition (NFPA Standard) of the Code by the agency or jurisdiction is an existing building. The date of approving the construction plans by the appropriate AHJ is to be considered for deciding what an existing building is.

Ontario, Québec, and the City of Vancouver have conclusive prescriptions for dealing with existing buildings and have defined the term existing building in their respective Codes. There is no arbitrariness or discretion given to the building official to decide if the building is to be considered existing or not.

The definition of an existing building by the provinces of Ontario, Québec, City of Vancouver, Northwest Territories, and NFPA has two components in common: the number of years since the building was constructed and the date from which the number of years is determined. Ontario, Québec, and Northwest Territories have included a number of years, like five years; however, Ontario

and Québec have not incorporated a definitive date from which the time is to be measured.

A period of five years to determine that the building is an “existing building” seems reasonable as it is an adequate time to ensure that the required life

*Expecting existing buildings to meet the current NBC is not a realistic goal, and the Canadian Commission on Building and Fire Codes recognizes this. Instead, the goal is to reduce the performance gap between an existing building and the current NBC as much as possible by judiciously applying the current NBC's requirements when existing buildings are altered.*

safety systems, both active and passive, are maintained and operating as per the applicable Codes and Standards. This time period would also discourage an owner with the intent of changing a building soon after construction to take advantage of relaxations of provisions that would typically be granted to an existing building undergoing an alteration. How to measure the number of years is a discussion that can be taken with all the stakeholders to decide the definition for “existing building.”

Deciding if a building is an existing building should be prescriptively defined, similar to determining if the building is to be designed as per Parts 3, 4, 5 and 6 or Part 9 of NBC. Before Part 10 is introduced in NBC, it is recommended to consider including the definition of the term ‘existing building’ in

NBC for consistency and elude subjectivity; its non-inclusion will be like a smartphone of credence without a sim card or a rose flower without a fragrance.

### Overall Principles-Alterations to Existing Buildings

As per the CCBFC report, a Part for existing buildings is anticipated to be introduced in NBC as Part 10, within the body of NBC. Part 10 of NBC will apply to both Part 3 and Part 9 buildings. The outreaching principle of Part 10 will be to maintain the minimum performance level of an existing building after alterations and reduce the performance level gap between the current NBC and an existing building.

The general principles listed in the CCBFC report for the development of technical requirements to determine the degree of compliance necessary to meet the current NBC is to ensure that the performance level of an existing building is not reduced after alterations. Some general principles are deliberated below for an understanding of what to expect in Part 10 of NBC.

Professionals, owners, and regulators need to understand that the concept of alterations to existing buildings is incomparable to the construction of new buildings. It is not mandatory to enforce NBC or NBC as referenced by the NFC for retrospective application of new prescriptions in NBC to existing structures unless specifically required by local regulations or bylaws. The goal is to encourage the building industry to improve and renovate to arrest ‘wear and tear’ of existing buildings.

Expecting existing buildings to meet the model Code of the day is not a realistic goal, and the CCBFC recognizes this. Instead, the goal is to reduce the performance gap between an existing building and the current Codes as much as possible by judiciously applying the current NBC's requirements to existing buildings. For an existing building that

has been in existence for many years or fully complied with NBC in force at the time of construction or if there are no evident problems with the basic life safety, it will be difficult to justify complying with the requirements of the current NBC. It will, therefore, be unrealistic and unreasonable to expect existing buildings to meet the current NBC.

Another principle in the CCBFC report emphasizes that the current Codes should not be applied to that portion(s) of the existing buildings that are not undergoing renovations, alterations or modifications, and where there is no change of use. If provisions of the current NBC are applied to existing buildings for occupants' safety, a cost analysis of implementing a requirement to overall Code objectives must be evaluated. Cost analysis must conclude that the regulatory measures applied to an existing building are reasonable, pragmatic, useful, financially viable, and practical.

It must be recognized that every alteration is unique and often involves a considerable commitment on behalf of the owner. A certain degree of flexibility between the owner, professionals, and AHJ will help improve an existing building's performance at a reasonable cost and with as little effort as possible without compromising safety. The general principles stated above are applicable to the Model National Building, Fire and Energy Codes.

### Alternative Solutions, Objectives and Functional Statements

NBC permits two ways of meeting its intent; one is an acceptable solution, and the curator owns the responsibility; the second is an alternative solution, and the proponent carries most of the responsibility. The final authority for accepting or not accepting an alternative solution ultimately rests with the AHJ.

Thus, the prescriptions in the proposed Part 10 of NBC/Part 9 of NECB,



Alterations to Existing Buildings, when included within the body of NBC/NECB, will be considered acceptable solutions for existing buildings—no different from designing new buildings.

### Accessibility, Energy Conservation, Post-Disaster Buildings, Voluntary Installations

#### Accessibility

Before 1985 NBC, there were no mandatory accessibility requirements in NBC; guidance was provided in the form of documents that could be adopted by a jurisdiction. Accessibility requirements were introduced for the first time in the 1985 edition of NBC, and some progress occurred between 1985 and 2015. In 2010, Canada ratified the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). Traditionally, disability was considered a condition residing within a person and the models used were based on “fixing” them through medicine or rehabilitation (i.e., the medical approach) or caring for them through charity or welfare programs (i.e., the charity approach). Article 9 of the UNCRPD addresses accessibility and shifts the focus from the medical/charity model to the social model of disability.

The government decision to ratify the UNCRPD was the impetus to include accessibility as an objective in NBC, alongside safety, health, and protection of buildings. Many provinces and territories such as Ontario, Québec, British Columbia, Nova Scotia, Yukon, Newfoundland, and Saskatchewan developed their own accessibility provisions to compete with each other. Canadian Standards Association (CSA) also developed a specific accessibility standard, CSA B651, Accessible design for the built environment, and NBC uses this standard in the accessibility Section (i.e., Section 3.8., Accessibility) as a reference for specific Articles in its 2015 edition.

It is a known fact that few municipalities across Canada do not review accessibility Section 3.8. of NBC. These municipalities essentially rely upon the professional's certificate and plans of construction signed and sealed by the professional and do not conduct plan examination except by way of possible screening for completeness or audit for Code compliance. However, in general, the municipalities that do not conduct accessibility reviews have internal unwritten guidelines except for the City of Winnipeg. The City of Winnipeg has specified unequivocally indicated on its plan examination checklist its policy regarding the review of Section 3.8. (accessibility) of the Code.

In the 2015 edition of NBC, major changes were incorporated to improve accessibility to a building, enabling independent living and full participation in all aspects of life for people of all ages with differing physical and sensory abilities. Major changes proposed in the 2020 edition of NBC enhance the accessibility requirements with specific consideration assigned to anthropometrics, washrooms, signage, power-as-

*The Energy Code was regulated by most provinces about two years back and enforcing it for existing buildings built before its adoption needs to be debated and understood judiciously. The feasibility of promoting alterations to existing buildings through voluntary programs, grants, and tax incentives may be explored as a substitute for mandatory measures.*

sisted doors, and mandatory elevators.

With the changes incorporated in the 2015 and 2020 editions of NBC, dealing with alterations to existing buildings will definitely be a challenging task for the standing committees and custodians of NBC. Examples of challenges for existing buildings include increase in the dimensions of the accessible path of travel to include 90% of the persons using manual wheelchairs, provision of a cane-detectable guards on the hinge side of power-assisted doors and adult changing space in a universal wash-room.

As stated in this article, ‘Part 10, Alterations to Existing Buildings’ is likely to be included within the body of NBC soon but not in its 2020 edition. It is also equally evident that there are significant changes incorporated in the 2015 and 2020 editions of NBC, and historically inclusion of any accessibility provisions is relatively recent. In addition, many provinces and territories have their own accessibility guidelines, and there is already a CSA accessibility standard (CSA B651). With all these hodgepodes, it is for the CCBFC to take a rational, holistic, and conclusive decision whether to keep accessibility requirements in Section 3.8. of NBC or update the CSA Standard to eradicate duplication of work and the confusion that is prevailing in the building industry—keeping both Section 3.8. and CSA B651 is an inequitable proposition, from the perspective of maintaining consistency among all the players of the building industry.

It is quite imperative to understand from the data displayed above, compliance to the accessibility requirements for alterations proposed in existing buildings constructed before 1985 having megalomaniacal inherited conditions—when no mandatory prescriptions existed in NBC; instead, there were limited provisions in the form of ‘Building Standards for the Handicapped’ produced by the Associate Committee on the National

*The CCBFC report does not facilitate or guide voluntary installations, and no algorithm is readily available within the building industry. In the absence of needed direction, it is essential to consider including definitive, technically and financially feasible, effective, and unambiguous prescriptions in Part 10 of NBC and Part 9 of NECB.*

Building Code. Thus, the structures built between the years 1985 and 2015 will have inherent unavoidable concerns. Therefore, it is for the writers/standing committees to adjudicate these facts pragmatically while writing the proposed Part 10, Alterations to Existing Buildings. In addition, Part 10, when included in NBC, should clearly and without discretion, prescribe the requirements for existing buildings for each Article of NBC.

There are few exceptions to this, including horizontal or vertical additions to an existing building required to meet the Code of the day adopted by the Local Authority. For example, accessible entrances for persons with disabilities is to be ensured for a vertical addition to an existing building. Also, in the case of a horizontal addition, an accessible entrance is to be ensured as per the Code of the day if not available in the existing portion of the building.

### **Energy Conservation**

The NECB was published for the first time in 1997, and Section 9.36. dealing with energy efficiency for Part 9 buildings was included for the first time in the 2015 edition of NBC. Both NECB and Section 9.36. deal with the building envelope, lighting, HVAC, service water heating systems, and electrical power systems and motors. Most provinces and territories adopted NECB sometime between 2018 and 2020, and the Northwest Territories did not adopt it at all. It is interesting to know that most provinces and territories did not enforce the Energy Code as late as 2018, and therefore, it is a humongous task to implement the provisions for the structures built before its adoption date. It is not intended to enforce either NBC or NECB for retrospective application of new requirements into existing build-

*continued...*

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*For getting a reliable reference as an acceptable solution within the body of the NBC and for eliminating mayhem surrounding the building industry, there is no doubt that adding Part 10 for NBC and Part 9 of NECB for alterations to existing buildings are indeed urgently and desperately needed. Exclusive and dedicated Part 10 for NBC or Part 9 for NECB without question is required to bring consistency, transparency, eradicate discretion, and avoid speculation in dealing with alterations to existing buildings—Not to forget, the construction industry directly influences Canada's GDP.*

ings or existing portions of relocated buildings unless specifically required by the local regulations or bylaws. Therefore, Part 9, Alterations to Existing Buildings, when written, may have to consider these facts as a precursor. The CCBFC recommendations to the standing committees for writing Part 9, Alterations to Existing Buildings, is to reduce the performance gap between existing buildings and the current Codes and maintain the overall building performance level after alterations. The Energy Code was regulated by most provinces about two years back and enforcing it for existing buildings built before its adoption needs to be debated and understood judiciously. The feasibility of promoting alterations to existing buildings through voluntary programs, grants, and tax incentives may be explored as a substitute for mandatory measures.

However, alterations that improve buildings' energy efficiency are of enormous strategic significance to the Government of Canada as it has signed on to the Paris Climate Agreement and is required to report on its progress towards meeting its commitments regularly. Since the implementation of energy conservation is the Government of Canada's commitment, and to accomplish it, the standing committees working on Part 9, Alterations to Existing Buildings, may require additional efforts to make it user-friendly, objective, finan-

cially feasible, technically viable, and robust to withstand legal scrutiny.

### **Post-Disaster Buildings**

A post-disaster building is a defined term in NBC, and it means a building that is necessary for the provision of essential services to the general public in the event of a disaster.

Being classified as a post-disaster building has NO influence on any portion of NBC except Part 4. Part 4 of the Code deals with the 'Structural Design' of any building, including post-disaster buildings. Buildings designated as post-disaster are to be designed to Part 3 and Part 4 of NBC irrespective of their use, building area and building height. However, NBC provides flexibility to the AHJ to exempt buildings that do not provide essential services to the general public or unnecessary for their emergency management plan.

The CCBFC report does not include guidance or algorithm in this regard, and no convincing information is readily available elsewhere relating to implementing the post-disaster prescription to existing buildings. In the view of the authors of this article, where a building designated as a post disaster is altered or where there is an addition to an existing post-disaster building, the entire building is to be upgraded to certain up-gradation levels.

The writers/standing committees of NBC may consider the level of upgradation based on an increase in hazard level, minor addition, and major addition (horizontal or vertical). The fulcrum of upgradation may be focused on fire and life safety, structural and non-structural aspects of NBC. However, when written, prescriptions in Part 10 should be user-friendly, easily conceivable, financially feasible, and achievable at the construction site. For example, a vertical addition to an existing building may be upgraded to resist 75% of the current lateral force to meet the intent of Part 10, Alterations to Existing Buildings. Similarly, non-structural upgradation should include restraining all interior partition walls, ceiling supporting frames, T-bars assemblies, ceiling gypsum board, overhead mechanical equipment and services, overhead electrical equipment and services; and restrain exterior falling hazards to resist forces due to seismic events from cladding, veneer, cornices, parapets, canopies, awnings, and ornaments attached to the building's exterior.

It is a megalomaniacal challenge for the professionals to design Part 9 buildings under Part 3 of NBC due to change of importance factor to post-disaster. In addition, as per NBC, all buildings, including Part 9 buildings designated as post-disaster, are to be designed as per Part 3 and Part 4 of NBC. The change of importance factor is a monstrous change and a difficult task to conceive, especially its implementation. For example, Code requirements for designing automatic sprinkler systems and horizontal concealed spaces are different for Part 3 and Part 9 buildings. Therefore, writers/standing committees for Part 10 may have to rationalize and legitimize the concept before finding a tenable solution.

### **Voluntary Installations**

Voluntary installations in the context of administering NBC means installing something that is not mandatory. Good engineering practice is to be exercised

*The CCBFC report recommends the concepts used in OBC Part 11 and QCC Part 10 for writing Part 10 of NBC. The concept for alterations to existing buildings in OBC and VBBL is quite similar for meeting the Code's intent; however, the tone and the tenor of the approaches are entirely different. The VBBL provides guidelines; what triggers upgrading an existing building and lists detailed guidelines, where and to what extent upgradation is required. However, VBBL is conspicuously silent on existing buildings' requirements for the specific Articles of the Code. In comparison, OBC Part 11 is dedicated exclusively to existing buildings, and it appears within the body of the Code. Therefore, compliance with the requirements of Part 11 of OBC automatically means satisfying the acceptable solutions of OBC.*

to ensure that the voluntary installations will not reduce public safety standards established by NBC requirements. However, voluntary installations may trigger consequential NBC requirements and therefore needs to be reviewed with the AHJ.

For example, the voluntary installation of an automatic sprinkler system may mandate installing a fire alarm system unless NBC specifically exempts it. The impact of voluntarily installing a fire alarm system in an unsprinklered building will mandate the installation of fire detectors, manual stations, and other features to meet NBC's intent.

Another exceptional example, the voluntary installation of an elevator, will mandate compliance with the requirements relating to floor areas' protection of a

*continued...*



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barrier-free path of travel in an unsprinkled building. In addition, the installation of an elevator will also mandate compliance to the accessibility requirements of NBC.

NBC provides exceptions for voluntary installations in some instances; for example, using assemblies with a greater fire-resistance rating than required by NBC does not oblige the designer to exceed the minimum needed fire-resistance required by NBC for the related assemblies. Another example is using noncombustible construction voluntarily; this does not oblige the designer to comply with the other noncombustible construction provisions prescribed in NBC.

*VBBL Part 11 provides flow charts for the extent of alterations to be carried out in existing buildings; however, it is shy of 'what and how' to carry out alterations to existing buildings to meet its intent. QCC Part 10 and OBC Part 11 have a few similarities. However, OBC Part 11 has all the ingredients of a technical guidebook to 'alterations to existing buildings' incorporated within the body of OBC. OBC Part 11 prescribes when, where, what, and how to design alterations to existing buildings without compromising the life safety systems.*

The CCBFC report does not facilitate or guide voluntary installations, and no specific information is readily available within the building industry. In the absence of needed direction, it is essential to consider including definitive, technically and financially feasible, effective, and unambiguous prescriptions in Part 10 of NBC and Part 9 of NECB. The authors of this article believe that voluntary upgrades for fire alarm systems or their components, automatic sprinkler systems or their components, exits, accessibility, seismic work, washrooms, kitchens, energy or water efficiency or building envelope repair work should not trigger a further upgrade of the building unless it is mandatory based on the Local Bylaws or the owner elects for it.

### **What Should be Considered for Inclusion in Part 10/Part 9 – Dedicated Exclusively to Alterations to Existing Buildings**

As per the references available for existing buildings and the recommendations deliberated by the CCBFC, the two primary outreaching tenets are: an alteration should not reduce the performance level of an existing building and efforts should be made for closing/reducing the performance gap between the Code of the day and the existing building. However, the CCBFC report is entirely silent on the performance level of an existing building.

The CCBFC report recommends the concepts used in OBC Part 11 and QCC Part 10 for writing Part 10 of NBC. However, in the authors' view, OBC and Vancouver Building Bylaw (VBBL) concepts are reasonably comparable as both determine the hazard level for dealing with existing buildings. The hazard level or hazard index (HI) is based on factors typically associated with a specific use or primary occupancy, building area, building height and other related factors. The other considerations used to determine how much upgradation level is required depend on how much life safety systems are im-

acted due to the proposed alterations in an existing building.

The concept for alterations to existing buildings in OBC and VBBL is quite similar for meeting the Code's intent; however, the tone and the tenor of the approaches are entirely different. The VBBL provides guidelines; what triggers upgrading an existing building and lists detailed guidelines, where and to what extent upgradation is required for fire and life safety, structural, non-structural, accessibility, and energy; VBBL is conspicuously silent on the requirements for existing buildings for the specific Articles of the Code.

In comparison, OBC Part 11 is dedicated exclusively to the existing buildings, and it appears within the body of the Code. Therefore, compliance with the requirements of Part 11 of OBC au-

*OBC Part 11, in many ways, is quite similar to NFPA 101, where prescriptions for new and existing buildings are located adjacent to each other-this is not an unconventional practice to adopt.*

tomatically means satisfying the acceptable solutions of OBC. Part 11 of OBC applies to only those parts of an existing building subjected to alteration and other parts of a building adversely affected by the alteration.

OBC Part 11, based on the performance level, hazard, and construction index, enables the designers and the AHJs to evaluate deficiencies in an existing building and judiciously evaluate practicable economic objectives and alternate measures to achieve an equivalent or better level of safety. These measures are termed as 'Compliance

Alternatives.' Compliance Alternatives for existing buildings in relation to OBC requirements for Part 3 and Part 9 new buildings are included for all major occupancies in a tabular format in OBC Part 11. In some cases, Compliance Alternatives can be used without AHJ approval. Compliance Alternatives included in OBC Part 11 are significant

*In the authors' considered view, OBC Part 11 is an easy-to-use technical guidebook within the body of the Code that has been in existence for several years and, therefore, its contents are time-tested. The authors do agree that OBC Part 11 does have its challenges; however, with this backdrop, it is viewed that OBC Part 11 may be modified to marinate it holistically with other references available in the building industry and improve it rather than reinventing the wheel.*

in number and sufficiently incorporate buildings' safety for fire protection, structural sufficiency of buildings, public health, and accessibility for persons with disabilities. These types of acceptable solutions are not available in any other reference listed earlier.

Compliance Alternative tables are substitutes for corresponding requirements contained in OBC Parts 3, 4, 6, 8, 9 and 12. For example, Article 3.4.6.7. which deals with ramp slope in new buildings with a Group A, Division 2 major occupancy; OBC Part 11, permits to accept the existing ramp slope in an existing building as an acceptable solution. The substitutions to the mandatory requirements prescribed in OBC are based on experience, understanding, meticulous, prudent, and judicious application of the Code without compromising the building's performance level.

A quick recap, the building's performance level after alteration is required to be equivalent to or greater than the

building's performance level before alteration. OBC has listed conditions when an existing building's performance level is considered as reduced and where the proposed construction would reduce the performance level of an existing building, OBC requires compensating construction.

Performance level describes the level of safety provided by the integrated function of building life safety systems, including fire containment, egress, fire alarm, suppression, and structural systems. In OBC, the HI is a non-dimensional number on a scale of 1-8, designating the life safety hazard to a building. One is the lowest life safety hazard level, and eight is the highest. Performance level describes the level of safety provided by the integrated function of building life safety systems, including fire containment, egress, fire alarm, suppression, and structural systems. Similarly, OBC has a procedure in place for determining the hazard and construction index.

### **Performance Level and Understanding Major and Minor Alterations/ Renovations**

The performance level principally depends on the extent of alteration or renovation done in an existing building. The performance level is adversely affected by an increase in building occupant

load beyond a certain percentage, for example, 15%, or change in major occupancy and other reasons listed in OBC.

Maintenance or repair or replacement with similar, minor alteration, major alteration, system, assembly, and component are the few terms used in the CCBFC report in relation to existing buildings. Alteration is the only term defined in the current NBC, and it means a change or extension to any matter or thing or any occupancy regulated NBC.

Alterations, as per readily available references, are divided into minor and major alterations. Major and minor alterations are not defined in the current NBC. The prescription of minor and major alterations in Ontario, Vancouver, and Québec Codes is different and needs harmonization.

Nonetheless, in the authors' view, minor alteration means constructing or altering a building or floor area, which does not decrease the building's performance level and does not adversely affect the building's life safety systems. It primarily includes construction limited to the improvement, alteration/renovation, reconfiguration, or refurbishment of common fire separated walls between two adjoining suites but excluding public or common floor areas that are not part of the scope of the alteration.

Similarly, major alteration describes construction where existing structural and fire separated assemblies with a fire-resistance rating such as interior walls, floor or roof assemblies are substantially removed and replaced in a building. A major alteration may also mean construction that is not a minor alteration. Major alteration may include-interior reconfiguration of multiple tenant spaces, including public or common spaces, creation of interconnected floor spaces, exterior alterations, or alterations that create a new tenant space. Change of use leading to a change of major occupancy classification or addition of a mezzanine could be considered as major alterations.

Repair work includes interior or exterior alterations and pertains to replacing existing building components with functionally compatible components. It includes removing and replacing any existing part, component, equipment, or fixture using a new part, component, equipment or fixture that serves the same purpose having identical or better configuration/performance/characteristics.

The repair work also includes replacing any part or component of an existing building to maintain or correct damage or failure. For example, maintenance or repair of the fire alarm systems, exits, elevators, automatic sprinkler systems, standpipe systems, smoke control systems, etc. (Refer to CCBFC report, VBBL, NFPA 101).

As stated earlier, references for the design of alterations to existing buildings currently available are: Guidelines for Application of Part 3 of NBC to Existing Buildings, CCBFC report dated April 2020, VBBL, QCC Part 10, and OBC Parts 10 and Part 11. Guidelines for Application of Part 3 of NBC to Existing Buildings is based on the 1995 edition of NBC and is outdated as NBC has considerably changed since then. The CCBFC report provides general guidelines to the standing committees facilitating understanding, the scope of alterations to existing buildings. VBBL Part 11 explains 'when and where' to apply it to existing buildings. VBBL Part 11 does provide flow charts for the extent of alterations to be carried out in existing buildings; however, it is shy of 'what and how' to carry out alterations to existing buildings to meet its intent. The enforcement is left on the judicious acumen of the AHJs.

QCC Part 10 and OBC Part 11 have some limited similarities. However, OBC Part 11 has all the ingredients of a technical guidebook to 'alterations to existing buildings' incorporated within the body of OBC. OBC Part 11 prescribes when, where, what, and how to

*"Commentary L" a little known; however, the only document available within the building industry that deals with the structural component for existing buildings may be considered for re-writing in a simple format. "Commentary L" should marinate with the newly proposed Part 10 of NBC so that the AHJs can apply it without basic structural engineering*

design alterations to existing buildings without compromising the life safety systems. It includes tables for determining the HI, CI, and for meeting Compliance Alternatives. The other feature that differentiates OBC Part 11 from other references listed earlier is the inclusion of a significant number of requirements of OBC in the Compliance Alternative tables. The compliance alternative tables are available for each type of major occupancy. OBC Part 11, in many ways, is quite similar to NFPA 101, where prescriptions for new and existing buildings are located adjacent to each other-this is not an unconventional practice to adopt.

In the authors' considered view, OBC Part 11 is an easy-to-use technical guidebook within the body of the Code that has been in existence for several years and, therefore, its contents are time-tested. The authors do agree that OBC Part 11 does have its challenges; however, with this backdrop, it is viewed that OBC Part 11 may be modified to marinate it holistically with other references available in the building industry and improve it rather than reinventing the wheel.

### Conclusion

For getting a reliable reference as an acceptable solution within the body of the NBC and for eliminating mayhem surrounding the building industry, there is no doubt that adding Part 10 for NBC and Part 9 of NECB for alterations to existing buildings are indeed urgently and desperately needed. Exclu-

sive and dedicated Part 10 for NBC or Part 9 for NECB without question is required to bring consistency, transparency, eradicate discretion, and avoid speculation in dealing with alterations to existing buildings-Not to forget, the construction industry directly influences Canada's GDP.

"Commentary L" a little known; however, the only document available within the building industry that deals with the structural component for existing buildings may be considered for re-writing in a simple format. "Commentary L" should marinate with the newly proposed Part 10-NBC so that the AHJs can apply it without basic structural engineering knowledge.

*<sup>i</sup> Both writers are experienced professionals and currently working in the building code industry. The views expressed by the authors are for generating an objective, transparent, nonpartisan, agile, and science-based debate to arrest unpredictability on alterations to existing buildings among all the stakeholders. For any clarification, please contact Avinash Gupta at [avinashguptap.eng@gmail.com](mailto:avinashguptap.eng@gmail.com) ♦*

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# Selling Fire Safety? Wait...What?

By: Kyle Chamberlain, A.Sc.T., CBCO, CFEI

**A**s fire protection and life safety professionals we are in the business of selling fire safety. Whether you work for a Fire Department, a consulting firm, are a technician or are involved in any facet of this field, it is important to understand that throughout your career you will be required to persuade people to choose fire safety. You will need to sell it!

Unfortunately, throughout my career, I have found that there is a lot of the “it won’t happen to me syndrome”. I have sarcastically joked with colleagues that never did I imagine when I first entered this industry that I would have to debate with people *about their own safety*.

It did not initially dawn on me when I entered this field that I would have to be a salesman. I had never ever wanted to be a salesman and I thought that by choosing the fire protection and life safety field, people would just naturally choose to take the safe approach. Wow, was I ever incredibly naive and wrong and learned quickly the following two truths:

- 1) You need to be able to persuade people to choose fire safety and prevention
- 2) Unfortunately, if not educated and informed in a persuasive manner, there is a significant percentage of people who will choose to cut costs / corners by eliminating or ignoring fire safety practices (potentially to their own detriment)

There is a quote I came across by famous motivational speaker and author Zig Ziglar that I find to be very true and has stuck with me:

*“I have always said that everyone is in sales. Maybe you don’t hold the title of salesperson, but if the business you are in requires you to deal with people, you, my friend, are in sales.” – Zig Ziglar*

The art of persuading people to choose fire safety and prevention is an on-going learning process and my approach is based on what I have found to resonate with people and turn the proverbial light bulb “on” in their head. I have learned through unpleasant and unsuccessful experiences, and I am still learning how to sell fire safety. I suspect that I will continue to learn how to do it for my entire career and beyond.

One thing I have learned that is not effective in persuading people is “negative messaging”. I have told people that if they do not do this or that, they will get injured or face a potentially life-threatening situation and, counterintuitively, I have found that I was not getting through. Doom and gloom is not effective. People are generally desensitized to this kind of messaging as we have negative messaging pushed at us constantly (just pick up a newspaper and you know what I mean). There is a psychology behind the ineffectiveness of negative messaging, and I will leave it with the reader of this blog to do their own research on that.

The opposite is “positive messaging”. Generally, people respond well when they are educated on certain things they can do or modifications in behaviours that can be made that lead to positive benefits in their own lives. They need to understand the value. It does not matter whether you are a Public Educator with the Fire Department teaching a class of Grade 3’s or you are a consultant convincing a business owner to pay you to prepare a Fire Safety Plan; people generally respond well to your “pitch” if you can explain to them the positive benefits of taking a fire safe approach.

I have learned a few approaches to take when trying to educate people on choosing fire safety and prevention, and I believe that these “pitches” can be used in both the public and private sectors to the benefit of the fire protection and life safety professional and the person they are trying to persuade. As such, here is an example with some talking points...

Consider a building owner who is either opposed to, or on the fence about having a fire safety inspection done in their building (doesn’t matter whether it’s a Fire Department inspector or a private consultant). They are hesitant and maybe even defensive about the process. Here is what I believe to be some good persuasive points to educate the owner about the inspection, that either directly or indirectly benefits him or her:

- It is an insurance policy against a

*continued...*



major life or business disruption.

Many people have never experienced a fire and the enormous time impact it can have on whatever it is that you do. Time is money.

- It will save you money and make you money. Knowing what needs to be done to have a fire safe building will save you money by avoiding disruption, legal action and liability. It will also make you money in the long run through equity and saleability: What building would someone rather buy? One with fire safety deficiencies, lack of permits and outstanding orders? Or one that is up to Code?
- It is an insurance policy against your insurance policy. Let's face it, if a fire happens in your building, insurance companies will be looking for any reason not to pay you. Fire safety viola-

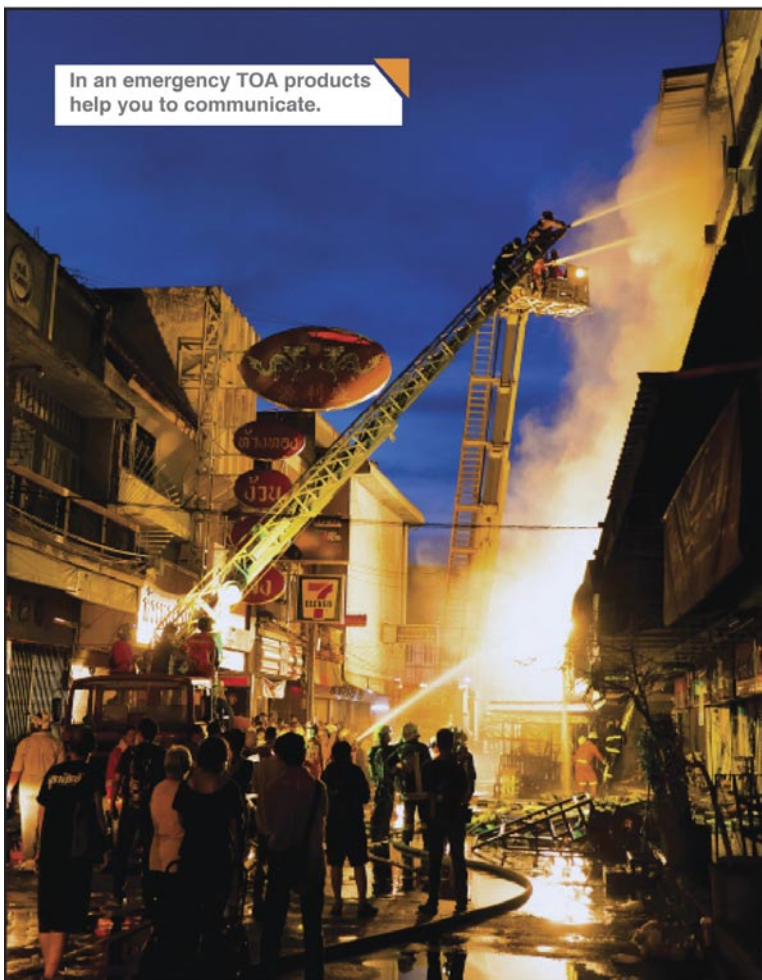
tions give them a perfect reason to deny your claim.

- Follow the proper processes and avoid future headaches. If a building permit becomes necessary, going through the building permit process will be an exercise in avoiding future problems. Do you really want to avoid this process, be found out, be required to uncover the work, be ordered to acquire a permit anyway and potentially have to do the work twice? It makes logistical and financial sense to do it right the first time.
- You can sleep at night. I know this may seem like it falls into the doom and gloom side of things but hear me out: it is one less thing that the building owner must worry about. If you are armed with knowledge of any potential fire safety issues and you act

on it and fix the problems, you can now get back to focusing on your business and life.

- Again, while counterintuitive, sometimes the last thing to talk about (or maybe not at all) is the potential for destruction, injury and death. My natural instinct is to talk about this first because I have seen it first-hand, it is horrible and I don't want it to happen to anybody. If someone asks or wants to talk about it I can talk to them all day about this, and sometimes people listen. However, in my experience it is not the most persuasive approach because it is negative messaging and people have a lot of negative information pushed their way every single day, such that it gets tuned out.

*continued...*



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This article is simply giving an opinion of potential approaches that you may want to think about when trying to persuade people to choose fire safety. These modified approaches were formulated over time following unsuccessful experiences I have had when discussing fire safety and prevention using negative messaging. I had to learn and adapt how I explained to people the benefits of fire safety as opposed to focusing only on the doom and gloom. My overall point is this: you need to try different

approaches if you're not getting the response that you feel is in the best interest of your clients' fire safety situation (and by "client", I mean anyone you're talking to about fire safety). Fire safety is obviously something that we should try to never walk away from without being as persuasive as possible. The reality is, if we are in this industry, we need to sell it.

I am still learning in this regard and will continue to "hone my pitch" throughout

my career. You may have other suggestions / approaches and I encourage you to use them, refine them and share them. At the end of the day, we can take pride in the fact that we are selling a life saving concept!

*Kyle Chamberlain, A.Sc.T., CBCO, CFEI  
Principal Fire Protection Consultant*

*Fire Advisor Consulting Inc.  
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A graphic celebrating the 50th anniversary of the Canadian Fire Safety Association (CFSA). The background is a light green grid pattern. At the top, a dark green bar contains the text "LIFE SAFETY CODE ENGINEERING SYSTEMS ENGINEERING ACCESSIBILITY". Below this, a white bar contains "TORONTO OTTAWA MONTREAL CALGARY". The main text reads "Congratulations to the Canadian Fire Safety Association on your 50th Anniversary!". In the center is a large green circle with "LRI" in white. At the bottom, there are social media icons for Twitter and LinkedIn, and the website "LRIFire.com" and email "info@lrifire.com".

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# Lessons from the Surfside Condominium Collapse

By: Katelyn Sebastian, P.Eng, PMP

*Please note: it is not the intent of this post to provide comment or opinion on the happenings of the Champlain Towers South failure. The purpose of this article is to review prospective safeguards and processes in place in Canada (and specifically Saskatchewan) to try to avoid such catastrophes.*

On June 24th, the Champlain Towers South in Surfside, Florida suffered a catastrophic collapse, killing nearly 100 people to date, with others injured or unaccounted for. At the time of writing this article, details were still being brought to light and many claims remain unsubstantiated. We mourn the families of the lives that have been lost and those that are still missing.

Such an event also calls to question: could this happen in Canada? What safeguards do we have in place?

Have such catastrophic collapses occurred in Canada?

In terms of fatal building collapses unrelated to natural disasters or fire, the list is relatively short. However, Canada is not without incident. Here are a few such events:

- 555 Teeple Terrace, Dec 11, 2020, London, ON – 2 fatalities ([Stunned construction industry asks: How did deadly collapse happen? | London Free Press \(lfpres.com\)](#))

- Radiohead Stage Collapse, June 16, 2012, Toronto, ON – 1 fatality ([Toronto stage collapse kills man ahead of Radiohead concert | CBC News](#))
- Save on Foods Collapse, April 23, 1988, Vancouver, BC – 0 fatalities ([1988: Miraculously, no one dies in Burnaby's 'Cave-On-Foods' disaster - Burnaby Now](#))

## Review of Work

Division C Subsection 2.2.7 of the National Building Code of Canada outlines the responsibilities of design professionals. Specifically, if the building has been designed to Part 4 of the NBCC, then the designer (or another suitably qualified person) shall review the construction of the building and all shop drawings and other related documents relative to the design to determine conformance with the design. Workmanship, materials, and all reports of material tests shall be reviewed by the designer (or another suitably qualified person) during the process of construction.

This direction of the NBCC helps protect occupants from the opportunity of faulty construction, but it does not protect occupants from gradual deterioration of originally conforming design.

## What processes does the UBAS Act prescribe?

In Saskatchewan, we have the Uniform Building and Accessibility Standards (UBAS) Act, which describes a permit-

*continued...*



*Champlain Towers Debris, CBC News, June 26, 2021 4 [Canadians unaccounted for in wake of deadly Florida condo tower collapse | CBC News](#)*



*Save on Foods Collapse, Burnaby Now, Oct 24, 2019 1988: (Miraculously, no one dies in Burnaby's 'Cave-On-Foods' disaster - Burnaby Now)*

ting process, prescribes the powers of the Building Official, and outlines the responsibilities of the Owner and its agents. This allows for the Authority Having Jurisdiction to review the construction documents, ensure that designs have been completed by registered professionals where required, and provide enforcement and administrative services related to building permits.

Among these responsibilities, the UBAS Act identifies that the owner or its agents are responsible to notify the appropriate local authority of the instance of structural failure of a building or part of a building, or the failure of equipment, devices, or appliances that may cause serious injury or loss of life. It may seem obvious if a building has collapsed, but a partial structural failure or failure of a fire protection system may not be so visible.

### What if the failure hasn't occurred yet?

Some building failures are immediate and catastrophic; however most are

not. Often there is evidence of gradual failure which, if unaddressed, may ultimately lead to catastrophic failure. Such gradual failure may create an unsafe condition.

In Saskatchewan, we also have the UBAS Regulations, which adopt and amend the National Building Code and set in place various general standards and accessibility standards. Amongst those standards, the Regulations address unsafe conditions. The regulations identify that no owner or its agents may cause, permit, or maintain an unsafe condition in construction, reconstruction, demolition, alteration, removal, relocation, occupancy, or change of occupancy of a building or part of a building. Effectively, it is the owner's responsibility to ensure that there is never an unsafe condition on their property, even during construction or repairs.

The regulation also identifies that the owner must immediately take all necessary actions to correct the unsafe condition. During such actions, it is the owner's responsibility to ensure that if the building or part of the building remains occupied, no occupant is exposed to an unsafe condition. If the owner does not take action, the authority having jurisdiction may complete the work on the owner's behalf and at the owner's expense.

*continued...*



*555 Teeple Terrace Partial Collapse, CBC News, Dec 11, 2020 2 dead, 4 in hospital after partial building collapse at London, Ont., construction site | CBC News*



*Radiohead Stage Collapse, The Star, June 19, 2017 [New trial ordered in deadly stage collapse at Downsview Radiohead concert](#) | The Star*

### What are the responsibilities of an engineer who has reviewed the building?

In Saskatchewan, we have the Engineering and Geoscience Professions Regulatory Bylaws. Each province and territory has a similar set of bylaws to abide by. Within our Code of Ethics, there are a few clauses that directly apply. The very first clause of the Code of Ethics identifies that members and licensees must “hold paramount the safety, health and welfare of the public...” This is to say that public safety must be the top priority. Therefore, an engineer must do what is in their power to raise awareness to the Owner of an unsafe condition, and potentially notify the Local Authority if warranted.

Another clause from the bylaws identifies that members and licensees must “present clearly to employers and clients the possible consequences if professional decisions or judgements are overruled or disregarded.” If an engineer identifies an unsafe condition, it is the engineer’s responsibility to ensure that the severity of the condition is un-

derstood by the client, and that the consequences of inaction or delayed action are understood.

Effective communication is key. A report that documents structural deterioration or potential failure should not be left open to interpretation of the reader to determine the severity of the situation. On-site and/or follow-up communication with the client should be deliberate such that a client does not interpret reason to down-play the potential severity of the situation.

If the engineer has reason to believe that the owner may not notify the local authority of an unsafe condition and/or may not address the condition in a timely manner, the engineer has a responsibility to notify the local authority of the condition.

### In closing

In Canada, we generally have a framework to work within to keep our buildings safe. Our framework starts with a permitting process to ensure that construction documents are prepared by design professionals in accordance with

codes, bylaws, regulations, and other standards. That permitting process carries through construction and incorporates a design professional’s responsibility to review the work in accordance with building code requirements.

Once the building is constructed, the building owner is responsible to identify real or potential unsafe conditions, notify authorities, and remediate the condition. If such action is not taken, the authority having jurisdiction may remediate the condition at the expense of the owner. As part of remediating real or potential unsafe conditions, an engineer may be required to review the property. The engineer also takes responsibility both as the owner’s agent and in accordance with their Code of Ethics to protect the public. This includes clear communication of the severity of the condition, the risk of the condition, and the timeliness of remediation.

This article was originally published on the Kilo Lima website. For further information regarding the Kilo Lima Community, visit <https://kilolimacode.com/>.

*Katelyn Sebastian, PEng, PMP, is a Principal and Structural Engineer at Driftstone Consulting, a firm she cofounded in 2019. Located in Regina, Saskatchewan, Driftstone Consulting offers structural engineering and project management services for residential, commercial, industrial, and agricultural buildings across Western Canada.*

*Katelyn is a Structural Engineer with extensive experience in structural design and project management for a wide range of projects and building types. Katelyn obtained a Bachelors of Science in Civil Engineering from the University of Saskatchewan and a Master’s Certificate in Project Management from the Schulich School of Business. ♦*



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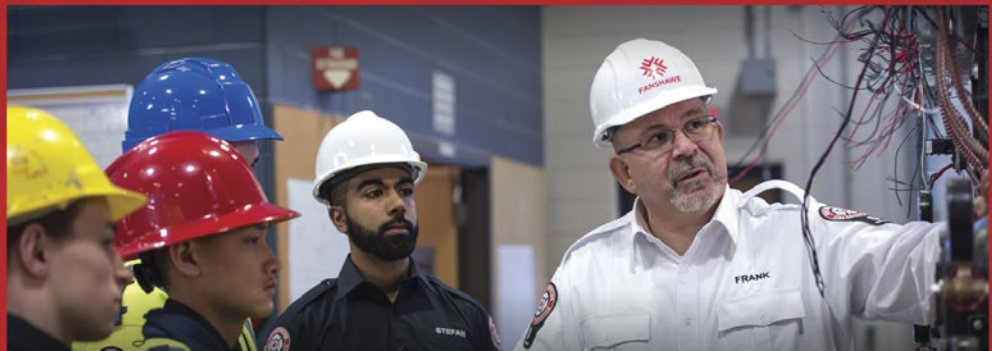
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# ISO International Workshop Agreement (ISO IWA 37) on Cannabis Concludes its Work

By: Tess Espejo



**T**he legal cannabis market is emerging very rapidly as a legitimate global industry. If the current trend continues, it is predicted that well over one third of the globe will accommodate legal cannabis by 2024.

New cannabis business is challenged by constantly evolving technology and multiple layers of regulatory requirements, both of which can impact day-to-day operations. As business evolves, ensuring the safety, security, and sustainability of the organization and the people that run it is a key driver of success.

Canada is uniquely positioned to offer global thought leadership based on the initiatives taken to date to wrestle through the safety, security and sustain-

ability considerations in coordination with regulators, government and industry stakeholders.

The Standards Council of Canada (SCC) and UL in Canada took the mantle of leadership and conducted an ISO International Workshop to develop guide documents covering the safety, security and sustainability of buildings, facilities, equipment and systems utilized for the cultivation, production, processing, transportation and sale of cannabis and cannabis products (ISO IWA 37). More than 200 delegates from 22 countries registered to participate in the 6-month workshop that held its final virtual meeting in June 2021.

ISO is now preparing to publish the IWAs resulting from the workshop, as follows:

- ISO IWA 37-1:2021, Safety of cannabis buildings, equipment, and oil extraction operations
- ISO IWA 37-2:2021, Secure handling of cannabis and cannabis products
- ISO IWA 37-3:2021, Good Production Practices guide for cannabis
- ISO IWA 37-3.1:2021, Food safety and quality management systems – additional requirements for cannabis edibles

*For more information about ISO IWA 37, contact the Secretary Tess Espejo at [Theresa.Espejo@ul.com](mailto:Theresa.Espejo@ul.com). ♦*



# The Building Code Side of COVID-19 – Something to think about!

By: Katelyn Sebastian, PEng, PMP

**R**esponse to COVID-19 has been a huge undertaking for most businesses: screening staff and customers, revising operations and even business plans, maintaining spatial separation, upgrading sanitation schedules, controlling access points, the list goes on. The intent of this article is by no means to criticize or judge the business decisions of others in response to a pandemic. This article serves only to get you thinking about potential code implications of business responses in light of COVID-19 and how to best safeguard the public.

Since the onset of COVID19, I've noticed many businesses large and small reducing the number of available entrances and exits in order to control customer numbers and circulation. I've also navigated the "new norm" of labyrinths of one-way aisles and check-out corrals demarked by arrows and 2m spacing stickers. However, I didn't think much about the role of architecture and buildings engineering in COVID-19 response efforts until I came across an [article](#) by Rick Quirouette proposing potential architectural solutions to schools reopening safely. Amidst ever-

evolving public health orders and best-practices, is the building code still getting the consideration it needs in order to safeguard the public? Are some businesses unknowingly making decisions that may impact life safety in case of emergency?

There are a number of variables that impact the required quantity of exits for a building: use, occupant load, size, travel distance to exits, presence of fire compartments, presence of sprinklers, etc. For some buildings, the reduced build-

*continued...*



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ing capacity as determined by public health orders may allow for a reduction in exits, so long as all other variables are considered.

- Are at least 50% of entrances still accessible?
- Are maximum allowable distances to exits maintained?
- And most importantly: will employees or customers know where to go in case of emergency?

I've seen some businesses where there's simply a sign on the door asking customers not to use it or identifying it as "entrance only". I've seen other businesses where alternate doors are locked or physical barriers such as shelves make the doors inaccessible. Perhaps the business owner determined that the door was no longer required by code; perhaps the business owner expects that customers will know

to exit through the "entrance" door in case of emergency. But is the business owner correct in assuming the customer will know what to do?

In case of emergency, we are taught to seek out our nearest exit. It may be identifiable by a door, an exit sign over a door, or an exit sign identifying the direction of the nearest door. Now, imagine that there is a fire and you follow the exit signs only to find that they lead to a door blockaded by a wall of water jugs.

- Will you have time to find another door?
- Will children or the elderly know that they can exit through the "entrance" door in case of emergency and amidst the confusion that might ensue?
- What if the door is locked?

Even if exit signs are removed at exits

that are closed, there may still be customers that act out of habit. In the same way that it may be your natural response to stop at a green traffic light that has for 20 years been a stop sign, you may travel to the exit that you are most familiar with only to find that it is no available.

I think that with a mild degree of common sense, most customers will know that one way aisles should not impact their travel path to the nearest exit. But what about customers that get caught in lengthy checkout corrals?

Worse yet— what if a business owner removes a necessary barrier-free exit? Think about what business responses to COVID-19 you have observed that make you wonder about building code implications? ♦

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9. Fixed Temp Heats don't have to be tested.
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7. We don't test End of Lines because they are a pain in the ass.
6. I don't know how to test a Fault Isolator. I just copy the last guys report.
5. We don't test Fault Isolators because our Boss told us that if you short them you will fry them.
4. I don't test anything that requires me getting a ladder out to test.
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# Summer Fire Safety Tips

## Campfires:

Before starting a fire, know how to put out! The safest way to extinguish a fire is to douse it with water, bury the smoldering fire with dirt/sand, and re-douse with water again. Have tools such as a shovel and bucket of water handy and close by before igniting the fire. You never know when an emergency may occur requiring quick action.

**Prepare the area:** Before starting a fire, make sure the area is safe. The location should be away from grassy areas, overhanging trees/branches, and any other dry vegetation that could easily catch fire. It should also be at least 25 feet from any structure. Dig a pit about a foot deep and surround the hole with rocks and get your fire started. Never use gasoline to start a campfire.



**Stay close:** Never leave a campfire unattended. Consider designating a person to be in charge of the fire and take turns ensuring the fire is always attended to. Make sure it is out before turning in for the night!

## Grilling:

As you know, summer is the peak grilling season. No matter what type of grill you are using, maintain a three-foot “safety zone” around your grill so that it is away from objects and other people. Never leave a grill unattended and be ready to put out the fire in the event of a fire emergency.

**Gas grills:** Before lighting up the grill for the season, check for gas leaks. To check a gas tank hose for leaks, use and apply a light soap and water solution to the hose. A propane leak will release bubbles. Do not use the grill if you smell gas or see bubbles from the bubble test. Always keep the grill lid open when lighting, and never lean over the grill when igniting.

**Charcoal:** Charcoal produces carbon monoxide when burned. Never burn charcoal inside and never store the grill indoors with freshly used coals. Never use gasoline or kerosene as a starter. Keep the vents open while cooking.

Allow coals to burn out completely and let ashes cool at least 48 hours before disposing of them in a noncombustible container.



**Electric:** Never operate an electric grill in the rain and never put parts of the grill in water. When the grill is not in use, keep it unplugged. To prevent risk of shock, electric grills should be connected to a GFI outlet.

## Naturally Occurring Fires

Lightning strikes are highest in the summer! When storms occur and lightning strikes coupled with the dry conditions and high temperatures of the summer months, it's a dangerous recipe for fire. According to the NFPA, lightning is a major factor in wild land fires. In fact, the average number of acres burned per fire is much higher in lightning fires than in fires caused by humans.

Lightning strikes can also cause house and structure fires. Homeowners can prevent fire caused by lightning strikes by maintaining your lawn, bushes, and trees. Cut them low. Keeping gutters cleaned out will also reduce the risk of debris catching fire. Stay indoors during a lightning storm.



### Before you Go!:

Before heading on your camping trip or before lighting up the grill at your next backyard BBQ, be fire smart! Educate yourself and your family on the dangers of fire and make sure you are prepared.

Sometime the unexpected happens. Therefore be sure you have the necessary tools and skills.



### Here are some ways YOU can be prepared for fire this summer:

- Teach kids “stop, drop, and roll” (even adults may benefit from this reminder).
- Carry a portable fire extinguisher in your vehicle if going camping.
- Keep a portable fire extinguisher in your kitchen or easily accessible to you while grilling.
- Have an evacuation plan for house fires.
- Check for burn restrictions before lighting up a campfire.
- Have a valid escape plan when camping, which may include getting information from the campground you’re staying in.
- Have the necessary tools to extinguish a camp fire before you start the fire (bucket for water, hose, sand/dirt, shovel, etc.).
- Watch the weather! Summer storms pop up fast! ♦

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# Program at a Glance



## DAY 1 - Tuesday, September 21, 2021

8:45 am – 9:00 am	Delegates login to platform
9:00 am – 9:15 am	Welcome Address Scott Pugsley, CFSA President
9:15 am – 10:15 am	Keynote Address <b>Presenter:</b> Ryan Duggan, Director of Fire & Life Safety, City of Toronto <i>(click for session details)</i>
10:20 am – 11:05 am	OBC 2022 Updates <b>Presenter:</b> Matteo Gilfillan, LET, B.A.S., C.E.T., CFPS <i>(click for session details)</i>
11:20 am – 12:05 pm	High, Medium, or Low? A guide to determine industrial occupancy classifications <b>Presenter -</b> Melinda Amador, P. Eng., CodeNext Inc. <i>(click for session details)</i>
12:10 pm – 12:15 pm	Closing Remarks
12:15 pm – 1:45 pm	At leisure to connect with delegates through platform and view exhibit directory

*continued...*

# DAY 2 - Wednesday, September 22, 2021

## Theme: Energy Storage Systems

Lithium ion battery applications have continued to increase from consumer products to e-scooters to large-scale energy storage systems (ESS). The wide use of this effective technology has increased at a pace that codes and standards are lagging behind relative to fire and explosion protection, particularly with ESS and facilities that have areas for handling and storage of Li-ion batteries. As more research and testing of new systems occurs, the industry continues to develop best practices for developing and protecting safe Li-ion battery applications. This series of presentations will provide an understanding of the fundamentals of Li-ion batteries and their potential hazards along with an overview of existing codes and standards and best practices for conducting hazard and mitigation analyses. Presentations will also provide case studies and insights into best fire protection practices for ESS and handling and storage applications.

9:00 am – 9:15 am	Delegates login to platform
9:15 am – 9:25 am	Opening Remarks
9:30 am – 10:15 am	<b>Part 1</b>  Lithium-Ion Batteries – Fundamentals and Hazards <b>Presenter</b> - Amir Baroughi, M.SC., P.Eng., Jensen Hughes <i>(click for session details)</i>
10:15 am – 10:55 am	<b>Part 2</b>  Introduction to Energy Storage System (ESS) <b>Presenter</b> - Dan Gottuk, PhD, PE, Jensen Hughes <i>(click for session details)</i>
11:05 am – 11:55 am	<b>Part 3</b>  Energy Storage System (ESS) – Protection & Case Study <b>Presenter</b> - Jens Conzen, Jensen Hughes <i>(click for session details)</i>
12:00 pm – 1:00 pm	<b>Part 4</b>  Handling, Storage & Fire Protection of Lithium-Ion Batteries <b>Presenter</b> - Jason Sutula, PE, Jensen Hughes <i>(click for session details)</i>
1:00 pm – 1:10 pm	Closing Remarks and Draw Prizes
1:10 pm – 2:00 pm	At leisure to connect with delegates through platform and view exhibit directory

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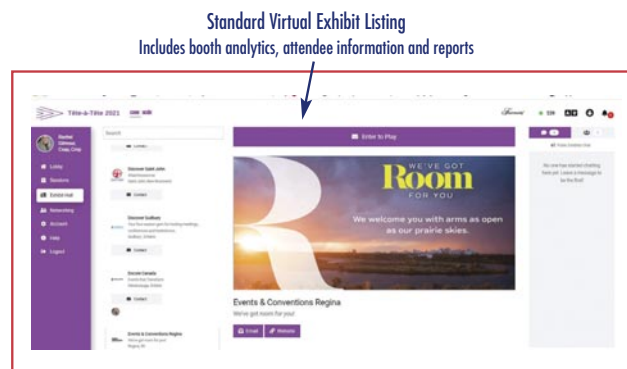
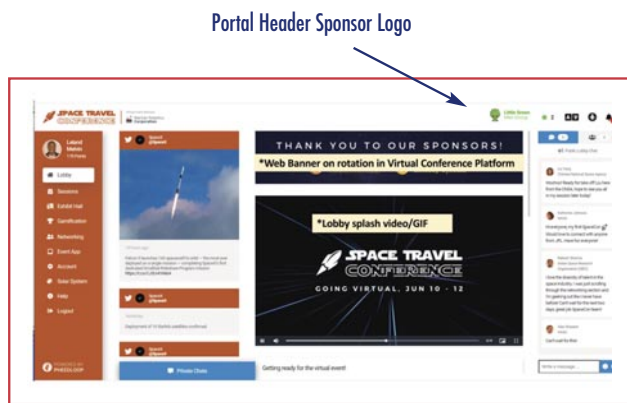
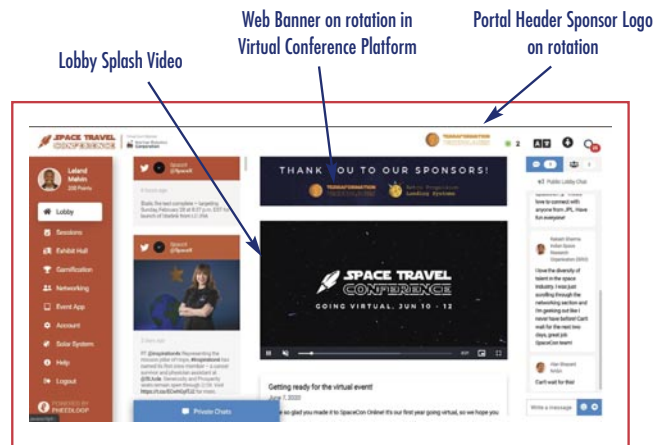
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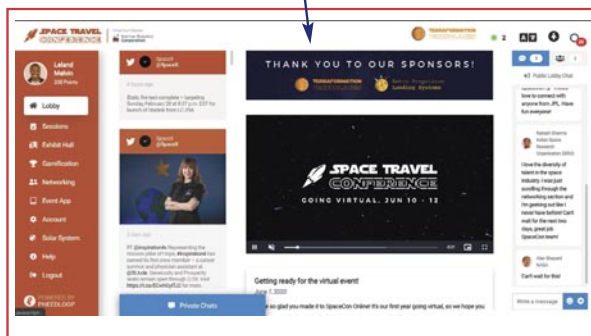
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*Tania Barnes* 416-751-8383  
*Sanj Patel* Burlington 416-230-9155  
*Blake Smith* Brampton 416-751-8383  
Toronto, ON  
[www.ignisinc.ca](http://www.ignisinc.ca)

## Independent Plumbing & Heating Contractors Association

Member since 2005  
*Mauro Angeloni*  
Toronto, ON  
416-248-6213  
[www.iphca.ca](http://www.iphca.ca)

## Jensen Hughes Consulting Canada

Member since 1998  
*John Boland* 647-559-1256  
*Vanessa Figliomeni* 647-361-1930  
*Matt Porter* 647-977-8446  
*Anthony Rago* 647-557-3671  
Toronto, ON  
[www.jensenhughes.com/canada](http://www.jensenhughes.com/canada)

## LRI Engineering Inc.

Member since 1986  
*Michael Devine*  
*Eric Esselink*  
*Mike Power*  
*Gary Robitaille*  
*Jon Winton*  
Toronto, ON  
416-515-9331  
[www.lrifire.com](http://www.lrifire.com)

## Matteo Gilfillan & Associates Inc.

Member since 2017  
*Justin Candito* 647-946-2473  
*Rita Cherniavskaya* 647-946-2483  
*Matteo Gilfillan* 647-926-5634  
*Murray Pham* 647-946-2475  
*David Vickers* 647-946-2465  
Vaughan, ON  
[www.mgacodes.com](http://www.mgacodes.com)

continued...

**Mircom**

Member since 2009  
Gerry Landmesser  
Stouffville, ON  
905-660-4655 Ext 3141

**Nadine International Inc.**

Member since 1992  
Ajwad Gebara  
Karim Gebara  
Mississauga, ON  
905-602-1850  
[www.nadineintl.com](http://www.nadineintl.com)

**National Research Council**

Member since 1986  
Ye Carrier  
Andre Laroche  
Russell Thomas  
Nick Yu  
Ottawa, ON  
613-993-9587  
[www.nrc-cnrc.gc.ca](http://www.nrc-cnrc.gc.ca)

**Oakville Fire Department**

Member since 1999  
Max Bertling  
Gary Laframboise 905-815-2008  
Jonathan O'Neil 905-845-6601  
Oakville, ON  
[www.oakville.ca](http://www.oakville.ca)

**Office of The Fire Marshal & Emergency Management**

Member since 1998  
Randy de Launay  
Mary Prencipe  
Toronto, ON  
647-329-1101  
[www.ontario.ca/firemarshal](http://www.ontario.ca/firemarshal)

**Offside Technologies Corp**

Member since 2020  
Mark Ainsworth 905-409-2751  
Stephen Ainsworth 905-903-5688  
Oshawa, ON

**OFS Fire Prevention**

Member since 1998  
Ed Herron  
Cale McLean  
Jeff Ough  
Barrie, ON  
705-728-5289  
[www.ofsgroup.com](http://www.ofsgroup.com)

**Ontario Fire Prevention Services**

Member since 2020  
Cherie Provost 905-401-2147  
Andrew Sorgenfrei 905-661-0951  
Niagara Falls, ON

**Pro-Firestop**

Member since 2001  
John Sharpe  
Toronto, ON  
416-293-0993  
[www.profirestop.com](http://www.profirestop.com)

**Rubes Code Consultants**

Member since 2009  
Jonathan Rubes  
Toronto, ON  
647-955-6760  
[www.rubescodes.com](http://www.rubescodes.com)

**Seneca College, School of Fire Protection Engineering Technology**

Member since 1971  
Derek Gruchy  
Hadi Majzoub  
Sarah Osborne  
Scott Pugsley  
William Sault  
Aneetha Vairavanathan  
Toronto, ON  
416-491-5050  
[www.senecacollege.ca](http://www.senecacollege.ca)

**Siemens Canada Limited**

Member since 1969  
Manuel Lopes  
Jeffrey Tondang  
Mississauga, ON  
905-465-7208  
[www.siemens.com](http://www.siemens.com)

**Taylor/Wagner Inc.**

Member since 2009  
Gary Taylor  
Innisfil, ON  
(416) 907-1017

**Telguard**

Member since 2020  
George Brody 800-229-2326  
Robert Corby 800-229-2326  
Scott Gobbi 800-229-2326  
Mitchell Olszewski 800-229-2326  
Melody Parham 678-909-4605

Susan Petersen 800-229-2326  
Daniel Rosales 800-229-2326  
Carolina Ruiz 800-229-2326  
Priscilla Weber 678-909-4602  
Carl Whitmire 678-909-4624  
Atlanta, GA

**Toronto Community Housing Corp.**

Member since 2009  
Ray Collins 416-746-6918  
Tim Daley 416-677-5317  
Michelle Laita 416-981-4430  
Flora Pannunzio 416-990-3610  
Toronto, ON

**Toronto Fire Services**

Member since 1988  
Lesley-Anne Coleman  
Adrian Ratushniak  
W.T. Sproule  
James Stoops  
Toronto, ON  
416-209-3567

**Tyco Thermal Controls**

Member since 2010  
Rick Florio  
Woodbridge, ON  
905-553-1836

**Underwriters Laboratories of Canada**

Member since 1998  
Sandy Leva 416-757-5250  
Brian McBain 416-288-2269  
Brian Murphy 289-251-0160  
Toronto, ON  
[www.canada.ul.com](http://www.canada.ul.com)

**University Health Network**

Member since 2010  
John Chartrand 416-340-4800 ext 5152  
Vito D'Amico 647-203-2722  
Ed Riley 416-603-5800  
Toronto, ON  
[www.uhn.ca](http://www.uhn.ca)

**Vaughan Fire & Rescue Services**

Member since 2000  
Doug Best 905-832-8585 Ext 6307  
Jon Caruso 905-832-8531  
Vaughan, ON  
[www.vaughan.ca](http://www.vaughan.ca)

continued...

## Membership in the CFSA has its benefits.

Want to see who our members are? While this information is available in our newsletter, did you know that you can access this information online in real time? [Click here](#) to see who joined the association since publication.



## Associate Members

### Canadian Wood Council

Member since 2015  
*Marc Alam*  
Ottawa, ON  
(613) 747-5544 ext. 232  
[www.cwc.ca](http://www.cwc.ca)

### Canterbury Fire Department

Member since 2009  
*Clifton Furrow*  
Canterbury, NB  
506-279-2220

### Prince Fire Safety Solutions

Member since 2019  
*Ben Prince*  
Edwards, ON  
613-618-1976

### Services Techniques Centurion

Member since 2012  
*Gaetan Serre*  
St-Constant, QC  
450-638-5558  
[www.gocenturion.com](http://www.gocenturion.com)

### Technorm Inc.

Member since 2018  
*Marc-Andre Langevin*  
Montreal, QC  
514-861-1940

### Javier Sanzsole

Member since 2021  
Elmvale, ON  
705-817-0248

## Individual Members

Joel Arellano  
Scarborough, ON

Steve Baxter  
Niagara Falls, ON

Domenic Biase  
Mississauga, ON

Aileen Chan  
Markham, ON

Anna Chan  
Toronto, ON

Guy Gallant  
North River, ON

Robert Gordon  
London, ON

Mazen Habash  
Mississauga, ON

Dave Hamilton  
Toronto, ON

Melissa Hanlon  
Caledon East, ON

Jeanette James  
Toronto, ON

Larry Keeping  
Toronto, ON

Colin Lahey  
Burlington, ON

Serge Lalonde  
Hamilton, Ontario

Scott Lawson  
Port Colborne, ON

Chris Logan  
Corunna, ON

Michael Lonergan  
Aurora, ON

Michael Mangov  
Brampton, ON

Eric Marchand  
Chateauguay, QC

Ted Mavraidis  
Toronto, ON

Adam McFadden  
Port Perry, ON

Rabih Melki  
Woodbridge, ON

Ashley Menzies  
Mississauga, ON

Kayleen Mertz  
Pickering, ON

Gordon Miller  
Cobble Hill, BC

Fred Muldowney-Brooks  
Toronto, ON

Svetlana Nichel  
Mississauga, ON

Paul Nicholson  
Hamilton, ON

Paul Nickerson  
Grimsby, ON

Ryan North  
Toronto, ON

Janet O'Carroll  
Toronto, ON

David Petrie  
Toronto, ON

Ryan Poroznik  
King City, ON

Randy Reinert  
Bowmanville, ON

Rodger Reiswig  
Apopka, FL

Ramy Salama  
Mississauga, ON

Kathryn Schramm  
Barrie, ON

Pamela Shinkoda  
Mississauga, ON

Bill Simpson  
Toronto, ON

Alan Speed  
Whitby, ON

Brian Thiessen  
St. Catharines, ON

Anthony H. Van Odyk  
Toronto, ON

Tony Velji  
Toronto, ON

Beth Weckman  
Kitchener, ON

Alexander Yarmoluk  
Mississauga, ON

# Student Members

## Durham College

Ryan Agnew  
Tre Antoine  
Sarah Boldt  
Marylin Boyle  
Kaelham Briggs  
Matthew Brown  
Joey Bryant  
Marcus Burditt  
Michael Canam  
Christopher Evans  
Dawson Fraser  
Ethan Green  
Javon Hinds  
Blake King  
Kerrigan Klatt  
DurDaniel Leung  
Mitchell MacBain  
Raymond Martina  
Christopher Matthews  
Owen McGuire  
Cameron McLennan  
Noah Millichamp  
Tumesh Narine  
Calvin Pedrozo  
Isaiah-Moise Perceval  
Matthew Reel  
Kurtis Roulston  
James Scott  
Sawyer Turpin  
Sarah Vaillancourt  
Mackenzie Wiatrzyk  
Bilal Zaidi  
Parker Zanussi  
Chris Drummond

## Fanshawe College

DJ Moore  
Raeanne Pouw

## Seneca College

Mohamed Ali Abdul Wahab  
Cassidy Adams  
Dario Agius  
Assib Ahmad  
Ali Alaidaros  
Eduardo Alvarez  
Erick Araujo  
Andrew Bartram  
Macenzie Boettger

Jesse G. Buckingham  
Andrew Catchpole  
Gokul Chandran  
Zhenyu Chen  
Leo Chung  
Makayla Craig  
Hari Dahal  
Hayrettin Danisman  
Shauna Evans  
Madison Fletcher  
Mitchell Fortier  
Marissa Hamelin  
Cheng Han  
Kamaal Hansel  
Ryan Harley  
Brandon Hope  
Brandon Hope  
Nixon Isdas  
Anwar Ismail  
Mike Jiang  
Shubdeep Kaur  
Logan Kieswetter  
Yeongdeuk Kim  
Christopher Laird  
Andrew Leite  
Michael Lena  
Longyi Li  
Donny Lin  
Cid Marco Malabanan  
Julia Malczewski  
Hourik Mardiros  
Aaron Marovitz  
Elias Martinez-Sorto  
SeneSarah McNeil  
Pedro Moreira  
Sean Morgan  
Simone Munro  
Samantha Murray  
Nicholas Naseer  
Hassan Patel  
Fabian Penafiel  
Marco Pereira  
Yordan Petrov  
Niroshan Ponnampalavanar  
Chiara Pugh  
Ashfiq Ur Rahman  
Kyle Rasing  
Philip Remillard  
Josh Roberts  
Juan Jesus

Saenz Guzman  
SenAyomide Sarumi  
Keyron Simon  
Sebastian Smiertka  
Sian Steindl  
Jack Straw  
Wenbo Sun  
Alireza Taghvaei  
Laurel Taylor  
Diana Therrien  
Christine Underwood  
Mahdi Vallante  
Jayden Vaughan  
SeEduardo Vitoretta Guerra  
Mahmadaezaj Vohra  
Chris Woodliffe  
Mingying Xu  
Bowen Yang  
Ty Yusko

## University of Waterloo

Jennifer Ellingham  
  
Dylan Arnold  
  
Brian Hogg  
  
Victor Malaiu  
  
Fang Zhu  
  
Serge Lalonde  
Messenger Affordable Fire  
Protection

# New Members

## Corporate Members

### GOLI Electric Inc.

Bill Berger 1-437-887-0197  
Mike Chase 1-408-729-1905  
Stephanie Cooper 1-437-886-1412  
Oakville, ON  
[golielectric.com](http://golielectric.com)

### Building Reports Canada

Aaron Klein  
Fred Leber  
Oakville, ON  
416-483-2895  
[www.buildingreports.ca](http://www.buildingreports.ca)

### City of Brampton

Ella Frabrizio 905-874-3791  
Farhad Habibi 905-874-2452  
Cindy Hammond 905-874-2443  
Doina Jejeran 905-874-2961  
Gop Kalaeswaran 905-874-3442  
Frank Labriola 905-874-2452  
David Ngoda  
Melvin Ramkissoon 905-874-3754  
Matt Tymoshuk 416-806-5796  
Bruce West 905-874-2438  
Brampton, ON

### Norris Fire Consulting Inc.

Jacob Cooper  
Tyson Eastgate  
Soojin Kim  
Sohail Madida  
Michael Norris  
Zef Pepaj  
Pickering, ON  
905-669-5154

### Associate Member

#### Global Health & Safety

Chris Roberts  
Coppell, TX  
972-393-5500  
[www.homesafenetwork.com](http://www.homesafenetwork.com)

### Individual Members

#### Noah Fetterly

Ottawa, ON

#### David Dillio

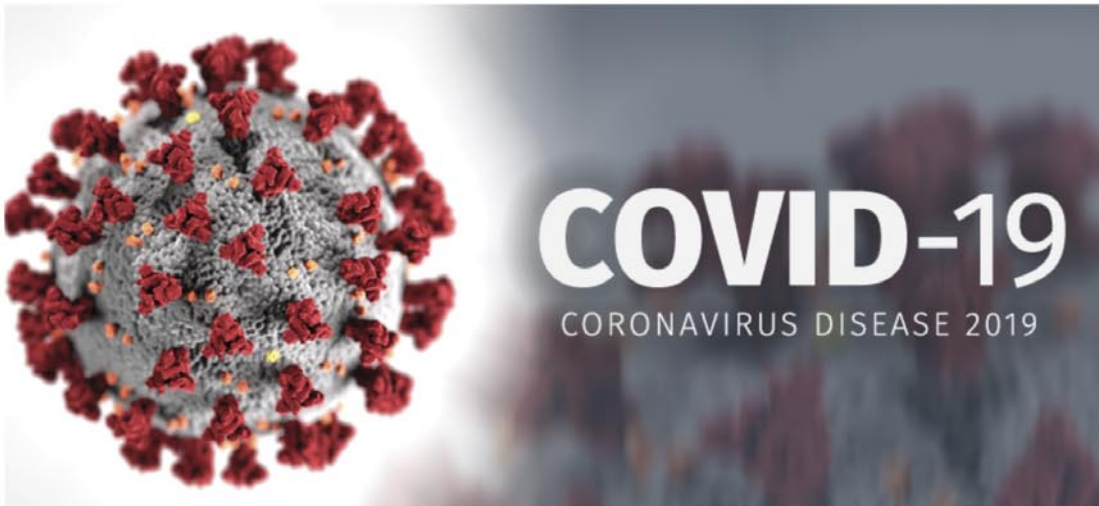
Chatham, ON

#### Rick Munroe

Gananoque, ON



## COVID-19



### A reminder from the Government of Canada regarding COVID-19



Public Health  
Agency of Canada

Public Service Announcement

Google



# Wear a mask. Save lives.

Wear a mask  
Clean your hands  
Keep a safe distance

General public health information

More Info

For more information visit:

<https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks.html>



# CFSA

## Membership Application Form

### Why Corporate Membership?

Corporate Membership is cost effective because it allows any number of individuals from your organization to participate in the many functions provided by CFSA throughout the year. Any number of persons can attend our monthly dinner meetings/ technical sessions or our annual conference at the preferred member's rate. Your advertisement in the CFSA journal is circulated to CFSA's membership of over 250 professionals in the Fire Safety Industry.

### Corporate

Includes 5 individual memberships; Company recognition in each of the four issues of the CFSA journal.

### Corporate Plus

Includes 10 individual memberships; Company recognition and a 1/2 page advertisement in each of the four issues of the CFSA journal.

### Individual Member:

Includes four issues of the CFSA journal and discounted rates at Association functions.

### Student Member:

Includes four issues of the CFSA journal and discounted rates at Association functions.

### Associate Member:

For individuals and companies located beyond a radius of 150 km from the Greater Toronto Area. Includes four issues of the CFSA journal and discounted rates at Association functions.

### Provincial/Territorial Chapter:

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

[canadianfiresafety.com](http://canadianfiresafety.com)

### CFSA Application for Membership

Name \_\_\_\_\_  
 Company/Affiliation \_\_\_\_\_  
 Title \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 Prov. \_\_\_\_\_ Postal Code \_\_\_\_\_  
 Business Phone \_\_\_\_\_  
 Business Fax \_\_\_\_\_  
 e-mail \_\_\_\_\_  
 Web site \_\_\_\_\_

### Please indicate how you first heard about CFSA




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

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

	Rate	+13%HST	Total Rate
<input type="radio"/> Corporate Plus (C3)	\$ 790.00	\$ 102.70	\$892.70
<input type="radio"/> Corporate	\$ 406.00	\$52.78	\$458.78
<input type="radio"/> Individual	\$ 82.00	\$10.66	\$92.66
<input type="radio"/> Student	\$ 25.00	\$3.25	\$28.25
<input type="radio"/> Retired	\$ 25.00	\$3.25	\$28.25
<input type="radio"/> Associate	\$ 56.00	\$7.28	\$63.28
<input type="radio"/> Chapter	\$ 180.00	\$23.40	\$203.40

### Method of Payment:

Cheque Enclosed \$ \_\_\_\_\_

Account # \_\_\_\_\_

Expiry Date \_\_\_\_\_

Signature \_\_\_\_\_

Please make cheques payable to:

**Canadian Fire Safety Association**  
 2800 - 14th Avenue Suite 210. Markham, ON L3R 0E4  
 Telephone (416) 492-9417 Fax (416) 491-1670