

CFSA

CANADIAN FIRE SAFETY ASSOCIATION

NEWS



Fire Safety is Everybody's Business

WINTER 2019

2018 Live Burn Event





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Editor: Lesley-Anne Coleman

The CFSA News Magazine is published 4 times per year: Winter, Spring, Summer and Fall.

Advertising Rates

Membership has its benefits, and advertising is a key advantage to getting your company and product information out to other members in the industry. The CFSA has decided to make advertising in the CFSA Newsletter a definite advantage for members.

Pricing has been revised to include the following rates:

	Member Rate	Non-Member Rate
Back Cover	\$250	\$750
Full Page	\$200	\$600
1/2 Page	\$100	\$300
1/4 Page	\$50	\$150
Business Cards	\$25	\$75

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

For more information regarding advertising in the CFSA News please contact Tara Dwomoh at (416) 492-9417 or Tara@associationconcepts.ca

All general inquiries and advertising materials should be directed to the CFSA Office.

We welcome your comments, suggestions and articles. To submit information, please contact us at Tara@associationconcepts.ca attention of The Editor.

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

CFSA Chapters

Interested in forming a new chapter? Call CFSA at (416) 492-9417



<http://goo.gl/Wp0uuQ>



@CFSA_CANADA



President's Message

Over the last several months the Board of Directors within the CFSA have been busy working behind the scenes on some very important initiatives. The majority of this work is all related to providing more value to our membership in terms of increased training sessions, increased newsletter content, widening our membership base as well as updating our website. While the results of this work may take some time to become apparent to everyone, now is a great time to let you know a little more.

Training seminars and Newsletter content:

Our continued goal is to provide timely and relevant training seminars on topics that our membership is interested in. This work is led by Janet O'Carroll and Randy de Launay (Technical Session Co-Chairs) Recent seminars have included Firestopping Codes, Tests and Applications; Commercial Cooking Exhaust Systems.

Recent sessions were *Cannabis Fire Risks: Home, Illegal & Legal Grow Operations* (Wednesday, December 5, 2018) and *Passive Performance Criteria & Combustible Cladding* (Wednesday, January 16, 2019).

Within our Newsletter you are already seeing the work of Lesley-Anne Coleman and Sandy Leva (Newsletter Co-Chairs) as they continue to provide the content sourcing and editing work needed to keep the fresh and interesting. The content development work is not exclusive to Sandy and Lesley-Anne. Each CFSA Director helps to provide content semi-annually and as always our members and others in the Fire and Life Safety Industry are encouraged to forward us content to consider. This Newsletter is emailed to our members and is also accessible online.

Membership:

On the membership front, we have recently put forward major changes to our Student memberships so that any student that is currently attending a Fire and Life Safety related program at a recognized Corporate plus level member University or College will be free and once they turn into an Alumni they will have a continued year of membership to the CFSA for free* also (*until our following AEF). Alternate member rates will also be available to those that attend and graduate from other schools.

To help and foster continued networking for all student and alumni members a NextGen group has been started to be led by Alex Yarmoluk and Kathryn Schramm both Director of the CFSA and recent graduates. This group will be starting to host informal evening meet-ups within the GTA to allow all members to meet and share their industry experiences with one and others. The goal of this group is to allow for enhanced discussions of all topics that are important to our membership that would not normally fit into a seminar or tech session template. Soft-skill discussions on career development, industry best practices along with other current event will be the start.

Website:

As with any association their website is an integral part of helping to communicate to potential members who they are, what they area about along with helping to keep their current members informed of current and upcoming events. These needs are the same within the CFSA and steps are being made to allow for streamlined and easier access to important information along with allowing members and guest to register for events online.

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 Scott.Pugsley@SenecaCollege.ca

Stay safe,

Scott Pugsley
CFSA President



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

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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Scott Pugsley President

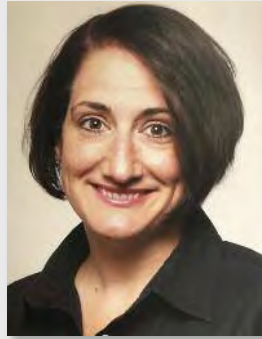
Primary role as Technical Sessions, Membership, Scholarship, Newsletter, Social Media and NextGen Committees

Professor and Industry Coordinator within the School of Fire Protection Engineering Technology at Seneca College

As a Fire Protection Professor, I create lesson plans and supporting media necessary for the successful presentation of subject matter within a lecture and or lab session format. Provide detailed explanations and real world examples of situations where the subject matter can be directly applied. As Industry Coordinator, I work to identify, develop and maintain external relationships with industry partners, individual companies and related trade associations for the enrichment of students, the College and Fire Protection community at large.

Other Involvement: NFPA Instructor, CFAA National and Ontario Director, Fire Marshal's Public Fire Safety Council (FMPFSC) Director, Member of ULC S1001 and TC-S4400, UL STP 199, UL300, UL1821

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Sandy A. Leva 1st Vice President

Active Board Member

*Senior Account Executive,
Underwriters Laboratories
of Canada Inc.*

I am a Sales Executive working for and representing UL and UL Canada on the CFSA Board and have been a member of and part of the Board for many years. As a college graduate from Seneca College with a Fire Protection Technician diploma, I have a vigorous grasp of safety-related standards, regulations, their interpretation and application, along with extensive experience in fire and life safety testing to those applicable Standards. I have over twenty five years of practical experience, technical expertise, industry knowledge and strong relationship building skills that allow me to assist UL Canada's key accounts with successfully bringing their products to market. I work within the industry as well as with Authorities Having Jurisdiction as it relates to UL & ULC Standards, construction designs, marks and listings and have a track record of consistently achieving the collective objectives of UL Canada and their valued customers.

Other Involvement: Fire Marshal's Public Fire Safety Council (FMPFSC)

Sandy.a.leva@ul.com
Mobile: 416-988-4087
7 Underwriters Road
Toronto, ON M1R3A9



Anthony Rago 2nd Vice President

Primary role as Second Vice President, Chair of the Annual Education Forum Committee and member of Revitalization & Membership and Technical Sessions Committee

*Senior Consultant,
JENSEN HUGHES*

As the Toronto Office Sprinkler Team Lead, I am responsible for managing the Sprinkler Team members workload, obtaining new project work, providing training, technical guidance and mentoring to junior staff. I also serve as the JENSEN HUGHES Account Manager for Nordstrom, in this role I am responsible for both the fire protection system design and code consulting for all Full-line and Rack project throughout Canada and the USA. their valued customers.

Other Involvement: SFPE Southern Ontario Member

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Announcing Three New Awards with a Total Value of \$ 3,000

By Anthony H. Van Odyk,
CFSA Membership Chair



We welcome **Building Reports Canada, Johnson Controls Inc. and Matteo Gilfillan & Associates Inc.** to the CFSA Scholarship Program. This now brings the number of awards presented at our Annual Education Forum to 13. The CFSA is very proud of our donor generosity and each year Sponsoring Donor Companies and CFSA present financial awards to deserving post-secondary students enrolled in a Fire Safety program. This year the total of all awards is \$ 11,500.

Building Reports Canada, Johnson Controls Inc. and Matteo Gilfillan & Associates Inc. join The City of Markham - Building Standards Department, FCS Fire Consulting Services, Firetronics 2000 Inc., Jensen Hughes Consulting Canada, LRI Engineering Inc., Mircom Group, Nadine International Inc., Siemens Canada Ltd., and Underwriters' Laboratories of Canada in providing generous assistance to leading Fire Safety students.

The following details the new Companies and their awards:

The CFSA Building Reports Canada Award

This award has been generously provided by Building Reports Canada. Building Reports Canada provides an accurate, trusted inspection collection method for the fire and life safety industry to assist in meeting compliance and regulatory standards.

Building Reports Canada applications are provided for Fire Alarm, Sprinkler,

Suppression, Portable and Safety Equipment, and Security. Their web site and industry specific handheld software allows users to easily scan device barcodes and specific information needed for the inspection. After collection, the data is uploaded, formatted and made available to all those who need them. Their form generator can also create any custom reports for clients or buildings as may needed.

This \$ 1,000.00 award will be presented to Year 2 student of a Technician or Year 3 of a Technology program with exceptional skills focused on Fire Alarm & Sprinkler Inspection and community contribution.

The CFSA Johnson Controls Inc. Award

This award has been generously provided by Johnson Controls Inc. Johnson Controls offers comprehensive and innovative building technology fire alarm and sprinkler systems and combines innovation in devices, controls, sensors, data analytics and advanced solutions.

Johnson Controls has national-based dedicated teams of Service Engineers to support their customer-base providing electrical, mechanical, preventative and reactive maintenance throughout all market sectors. Service Teams provide routine planned maintenance and urgent repairs. Johnson Controls also specializes in providing teams of Engineers who are able to carry out modifications or extensions to existing systems at short notice.

This \$ 1,000.00 award will be presented to Year 2 student of a Technician or Year 3 of a Technology program with exceptional skills focused on Fire Alarm & Sprinkler Systems, equipment Programming and community contribution.

The CFSA Matteo Gilfillan & Associates Inc. Award

This award has been generously provided by Matteo Gilfillan & Associates Inc. Matteo Gilfillan & Associates Inc. (MGA) is a consulting firm specializing in Canadian Building and Fire Code consulting PEO authorized services.

MGA has a collaborative approach that covers the areas of design development, pre-construction, construction and post-construction. They provide innovative and cost-effective design and construction solutions for their clients. Some of the services provided include: planning, site plan review and consulting, drawing review, building code reports, drawings, alternative solutions and negotiations, tender document review, partial occupancy, fire safety planning, and retrofit audits.

The \$1000.00 award will be presented to a top 3rd year student in a 3 year Fire Protection Engineering Technology Program with exceptional academic proficiency in Codes and Standards related courses and over all proficiency.

We extend our appreciation to these forward thinking companies on behalf of all Fire Safety students. Their
continued...

New Awards Cont'd

contribution is making a difference. Graduating students hold the potential for helping us achieve our mission of providing fire safe communities.

We continue to look for new financial donations from CFSA Individual and Corporate members. \$500.00 or \$1,000.00 tax deductible dollars leads to scholarship fund in your name. When you create a scholarship, you help a deserving student and make a difference. For more information, contact us at, Scholarship Initiative, Canadian Fire Safety Association, 2800 14th Avenue Suite 210, Markham, ON L3R 0E4. ♦

Upcoming Events

International Roofing Expo

February 11-13, 2019

Music City Center, Nashville, TN

CSC BUILDING EXPO

Wed, Feb 27, 2019

Metro Toronto Convention Centre, Toronto, ON

ISC West - The International Security Conference & Exposition

April 10 -12 2019

Sands Expo & Convention Center, Las Vegas, USA

FDIC International

April 8 - 13, 2019

Indiana Convention Center & Lucas Oil Stadium Indianapolis, Indiana USA

FCIA's Education & Committee Action Conference - ECA 2019

April 23-26, 2019

InterContinental Chicago Mag Mile, Chicago, IL

Ontario Association of Fire Chiefs (O AFC) 2019 Conference and Trade Show

May 3 & 4, 2019

Halls 2,3 & 4 - The International Centre 6900 Airport Rd, Mississauga, ON

NFPA Conference & Expo

June 17 - 20, 2019

San Antonio, TX

DHI Canada Conference & Expo

September 19-21, 2019

Mont Ste-Anne, Quebec

Data Connectors Toronto Cybersecurity Conference 2019

Thursday, October 17, 2019, 8:00 am

Toronto, ON

Security Canada Central 2019

October 23-24, 2019

Toronto Congress Centre, Toronto, ON

Construct Canada

December 4 - 6, 2019

Metro Toronto Convention Centre, Toronto, ON



Hire Top Quality Graduates.

Seneca remains the benchmark for fire and life safety education for more than 45 years, providing the most comprehensive 2- and 3- year programs including NFPA and CFAA certifications.

SENECA GRADUATES POSSESS:

- Superior training
- Hands-on experience in cutting-edge labs
- Knowledge of fire alarm and sprinkler systems
- An understanding of Building/ Fire Codes and Standards

Learn about our programs and join the growing number of employers hiring our grads.

Join us for our 8th Annual Fire Protection Career Fair and Networking Dinner on March 14, 2019 and meet our students.

Contact: Scott.Pugsley@senecacollege.ca
416.491.5050 ext. 22525

senecacollege.ca/fire



CANADIAN FIRE SAFETY ASSOCIATION
ASSOCIATION CANADIENNE DE SÉCURITÉ INCENDIE

CFSA Scholarship Program

Your Opportunity to Support Our Students

The CFSA is very proud of its scholarship program and each year we present financial awards to deserving post-secondary students enrolled in a Fire Safety program.

It is important to recognize the achievements of those students who stand out amongst their peers and to assist them with the cost. Completing this 3-year program can be as high as \$24,000.

As a scholarship sponsor, you will:

- provide the criteria for your award
- present the award at our Annual Education Forum
- be recognized in the CFSA Newsletter and on the CFSA website
- help a deserving student in their quest to become a fire safety professional

The following corporations have generously signed on to provide annual scholarships:

- LRI Engineering Inc.
- Jensen Hughes Consulting Canada
- Nadine International Inc.
- Underwriters' Laboratories of Canada Award
- City of Markham, Buildings Standards Department
- Siemens Canada Ltd.
- Firetronics 2000 Inc.
- FCS Fire Consulting Services
- The Mircom Group

Please add our company's name to this prestigious list of scholarship sponsors:

Name _____

Company _____

Email _____

Phone _____

Scholarship Committee Chair, Jim Stoops, will contact you to discuss opportunities for your company's participation.

SEND TO: 2800 14th Avenue, Suite 210, Markham, Ontario L3R 0E4
Tel: 416-492-9417 Fax: 416-491-1670 Email: cfsa@associationconcepts.ca Website: www.canadianfiresafety.com

Live Burn

When you think of a minute and thirty seven seconds, you wouldn't exactly think that a room could be fully engulfed in flames would you? Well....

By: Philip Stephane Remillard
(First year student at Seneca College)

The School of Fire Protection Engineering at Seneca College recently hosted its 4th Live Burn in conjunction with Fire Prevention Week, held from October 7th to the 13th. The event's aim is simple: Spreading awareness as to how fast a fire can spread and to share some easy fire safety tips to show the public, students and the fire suppression community. Outside the Newnham Campus D building, Mr. Scott Pugsley (Industry Coordinator/Professor) and the Fire Protection Student Association (FPSA) hosted the annual Live Burn Event. Ms. Emma Wang, President of the FPSA, introduced the audience to the important event and the value it places to not only the new and present students. This was also an opportunity for all to witness such a unique event that no other college offers.

There were two burn cells identical to a normal bedroom we would see today, including modern materials and furniture. Both were equipped with smoke

alarms, but only one is fire sprinkler protected. Mr. Pugsley explained the importance of having up to date smoke alarms for keeping our residences and households well protected. Mr. Pugsley was equipped with a microphone and was holding a thermal imaging camera in the other hand and began instructing the audience by providing evident cases and similar fires we currently face today.

Not only is it recommended to change the batteries in your current smoke alarm, but it is without a doubt crucial to make sure your smoke alarm is currently up to date as well. Smoke alarms must be replaced every 10 years. Finding an old alarm fabricated in the year 1998 with a new battery is not going to make

the cut. With the materials and construction drastically changing, smoke alarms should hold more value upon our households than many other high priced trinkets.

The two burn cells were identical with the same bed/mattress, a computer monitor sitting on a regular table, and a chair placed for a generic bedroom setting. Also, the smoke alarms were both the same as well. In contrast to all said above, the cell on the right was sprinkler protected with a residential concealed pendant. It is important to note that a fire hose discharges 250 gallons of water per minute and the fire sprinkler installed in the cell discharged 13 gallons per minute. Fire doubles its size

continued...



Live Burn Cont'd

every minute. With a stop watch running during the demonstration, we were able to determine that it took less than a minute (50 seconds to be exact) for flashover to occur within the burn cell that was non-sprinkler protected. Once the flashover occurred, temperature soared to a maximum ceiling temperature of 850 degrees Fahrenheit. Experiencing the heat from a safe viewing distance, the heat was intense.

On the other hand, for our sprinkler protected room, the maximum temperature that reached the ceiling was recorded at 150 degrees F. The presence of fire protection sprinkler systems clearly shows its effectiveness upon a fire. The results were evident with the walls, furniture, desk and chair being visibly intact once the smoke had cleared the scene. It is proven that in a real life situation, sprinklers can save our lives, friends and families. Most importantly, we can protect ourselves by implementing something so simple, and yet remarkably effective.

A sprinkler can immediately deliver water directly to a fire, thereby saving the occupants and their residence. As someone who has not seen or experienced being caught in a real fire, I was in complete disbelief. It was very emotional for me to think about all the infamous fire events that have previously been recorded, and to believe the problem still resides to this day. This is why the public, students, Industry leaders and our first responders have an idea of how significant it is for us all to be aware of the impact these kind of fire events bring forth to our world.

Currently sprinkler systems act as the primary solution toward containing and suppressing a fire. As it stands, fire sprinklers and smoke alarms reduce the chance of a fatality by 90%, and this is the primary reason for showcasing the live burn - to provide a clear representation of just how the two systems work.

Given the substantial results of the fire sprinkler protected room, the results leave us breathless to see how important it is to be wary of these events that we do not typically think of everyday, and that is why the annual Live Burn will remain a constant reminder and to us all. ♦



Options for Achieving Compliance for Sprinkler Installations in Care Occupancies and Retirement Homes

Fire Marshal's Communiqué - December 6, 2018

In May 2013, Ontario Regulation 150/13 was filed to amend the Fire Code with new requirements that apply to care occupancies, care and treatment occupancies, and retirement homes regulated under the *Retirement Homes Act, 2010*. These requirements include provisions for enhanced fire safety planning, compulsory training, and mandatory upgrades to existing buildings, including the installation of sprinklers and other building retrofits. To facilitate implementation by building owners and operators, **compliance deadlines** for the new requirements have been phased in since January 1, 2014. The final compliance deadline for care occupancies and retirement homes is **January 1, 2019**, and relates to sprinkler installation requirements under article 9.7.5.1. of Division B of the Fire Code.

Compliance with sprinkler installation, and other requirements in Part 9 of the Fire Code, is generally achieved through implementation of the prescriptive code requirement, however, other options are available for achieving compliance, including the following:

- implementation of an approved Life Safety Study in accordance with subsection 9.1.4. of Division B of the Fire Code; or
- implementation of an approved Alternative Solution under subsection 1.3.2. of Division C of the Fire Code.

While substituting either a Life Safety Study or an Alternative Solution for a code requirement may not always be feasible, these approaches to achieving compliance may be effective in select situations as either interim or permanent

solutions. Fire departments are encouraged to review these two compliance options with owners/operators of care occupancies or retirement homes that may be experiencing challenges with meeting sprinkler requirements.

It is important to note that Life Safety Studies and Alternative Solutions must be developed by either a professional engineer or an architect, and must be submitted to the Chief Fire Official (CFO) for approval. When a proposal is not accepted by the CFO, building owners/operators may appeal the decision in the same manner as they would for an order. The first stage of appeal involves making a request to the Fire Marshal for a review. A Fire Marshal review of a Life Safety Study or Alternative Solution is directed at evaluating the adequacy of proposed alternative measures.

The process for sprinkler implementation is complex as it involves a number of steps, including securing funds, applying for building permits, and construction. As these steps may introduce delays, it is important that, during this process, fire departments continue working with owners/operators to ensure active progress towards compliance is being made.

For buildings not in compliance on January 1, 2019, enforcement options available to fire departments are outlined in the *Fire Protection and Prevention Act, 1997* (FPPA). A case-by-case assessment of risk factors, progress being made towards compliance, as well as local policies and procedures, will inform the selection of enforcement ac-

tion in these instances. When the option to issue an inspection order under subsection 21.(1) is exercised, the right to request a **Fire Marshal review** should be reviewed with the owner/operator as he or she may be unfamiliar with the appeal process established under the FPPA. For situations involving multiple fire safety risk factors, enforcement options may include orders to close or authorizations to close under subsection 21.(2) of the FPPA, both requiring Fire Marshal approval.

For a comprehensive set of resources to assist owners/operators and fire departments, please visit the **Web pages on care occupancies, care and treatment occupancies, and retirement homes** on the Ministry of Community Safety and Correctional Services (MCSCS) Web site.

Information on the regulation of retirement homes under the Retirement Homes Act, 2010 is available through the **Retirement Homes Regulatory Authority**. For retirement homes enrolled in the Fire Sprinkler Retrofit Program for Licensed Small or Rural Retirement Homes, information about the program is available from the **Ministry for Seniors and Accessibility**.

Questions on the compliance deadline for sprinkler installations in care occupancies and retirement homes may be directed to Technical Services; staff members can be reached by telephone at (647) 329-1100, or through the MCSCS Web site on the **Ask OFM** page. ♦

REMINDER: January 1, 2019, Compliance Date for Hydrostatic Testing of Fire Department Connections for Standpipe Systems

In March 2018, Ontario Regulation 108/18 was filed to amend the Fire Code with changes related to the checking, inspection, and testing of standpipe and hose systems. Enhanced requirements for the routine annual inspection of standpipe and hose systems have been in effect since July 1, 2018.

Owners and operators of buildings with standpipe and hose systems that fall within the scope of Article 6.4.3.7. of Division B of the Fire Code are reminded that the compliance deadline for hydrostatic testing of fire department connection piping is January 1, 2019. The compliance deadline applies if a test has not been completed within the previous

- five years where
- (a) the fire department connection piping has been in service for more than thirty years, or
 - (b) the age of the fire department connection piping cannot be determined.

This is the final compliance date for requirements in the Fire Code introduced through O. Reg. 108/18.

REMINDER: January 1, 2019, Compliance Date for Sprinkler Installations in Care Occupancies and Retirement Homes

Owners and operators of care occupancies and retirement homes are reminded that as of January 1, 2019, sprinkler installation requirements under Article 9.7.5.1. of Division B of the Fire Code will be in effect.



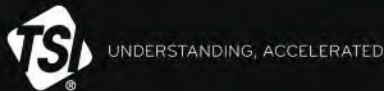
Please see **Fire Marshal Communiqué 2018-08** for information on options for achieving compliance.

This is the sixth of seven phased-in compliance dates for requirements in the Fire Code introduced through O. Reg. 150/13 and the last compliance date for requirements applicable to care occupancies and retirement homes. The full Compliance Schedule for these requirements can be found at the Office of the Fire Marshal and Emergency Management (OFMEM) website at the following link: **Compliance Schedule**. Additional information on the requirements can be found at the Care Occupancies, **Care and Treatment Occupancies, and Retirement Homes Portal**. ♦

DID YOU KNOW
YOU CAN NOW CONTACT
TSI DIRECT IN CANADA?

Questions about respirator fit testing, work area monitoring and/or personal exposure monitoring within indoor and outdoor applications? We can help—contact TSI direct in Canada about on-site product training, technical support, new product purchases and more.

Check out our limited time promotion at www.tsi.com/canada-direct





SAVE THE DATE!

Canadian Fire Safety Association Annual Education Forum

Thursday, April 4, 2019

**Paramount Conference & Event Centre
Woodbridge, Ontario**



The Merging of Legalized Medical & Recreational Cannabis in Canada: The Safety Aspects for Indoor Growing, Processing & Extraction Facilities



Jeffrey Tondang
Siemens Canada Ltd.

Prime Minister Justin Trudeau announced in June that beginning October 17, 2018, Canadians will be able to legally consume cannabis recreationally without the criminal implication of the past. Prior to the Prime Minister's announcement, the Cannabis Act (Bill C-45) to legalize and regulate cannabis was passed in Parliament. Canada is now the second country in the world, after Uruguay, to fully legalize cannabis for both medical purposes and recreational use.

What is cannabis? What is the difference between cannabis and other perhaps more familiar nicknames such as weed, pot, hemp, marijuana, ganja, etc.? Well, even though there are specific definitions and contexts to each of these more familiar terms, to most people there is probably not much difference. A lot of people associate these names to a substance that can create a euphoric high feeling by way of smoking.

Marijuana for example, is commonly thought primarily to be a smoke-able plant. Given the fact that cannabis has been illegal throughout the world until recently, it's easy to have that perception. The term marijuana, however, refers to the specific part of the cannabis plant, which includes the viable seeds, leaves and flowers. "Cannabis" seems to be the general



term that the industry is gravitating toward to describe the plant as well as its products. All the other terms in one way or another, are part of the cannabis family.

There are two most notable and widely used active chemical compounds or cannabinoids found in cannabis plants called THC (tetrahydrocannabinol) and CBD (cannabidiol). Both THC and CBD interact with the cannabinoid receptors found in the human body, but the side effects brought about by these compounds are not the same. The euphoric feeling mentioned above is basically the by-product of THC, which when used interacts with the human brain and creates the euphoric "high" feeling effect commonly referred to as being "stoned". On the other hand, CBD, the other cannabinoids, which are

claimed to possess a significant medical benefit, come with a less illuminating euphoric effect. Both are said to help with a number of ailments, and therefore are used by the industry as pharmaceutical active ingredients.

Canadian medical users have had access to cannabis since 2001. According to Health Canada there are presently 113 authorized licensed producers of cannabis for medical purposes alone. These licenses are issued under the *Access to Cannabis for Medical Purposes Regulation* (ACMPR). The top two license holders are the Province of Ontario listed with 61 licenses and followed by the British Columbia with 24 licenses. At the time this article is written, 89 new applicants are seeking government approval.

continued...

The legalization of recreational use has opened a large-scale opportunity for the industry to increase its production to meet the anticipated demand. As expected, Health Canada has received a surge of new applications for the growing, processing and extracting of cannabis. Over 200 new applicants are now being considered. We anticipate that many more companies, from small to large, will be jumping on this bandwagon.

When the licensed producers numbered only 55, a survey conducted by Statistics Canada reported a total of 2,399 persons employed in the field. Most of the jobs listed were in cultivation and harvesting, processing and manufacturing, quality assurance as well as administration and sales.

As investors and entrepreneurs currently inject capital and resources, the total employment is expected to rise. In addition, many more people, besides the employees are expected to have direct access to these facilities. Service providers, first responders and inspectors are among those on this list. With the lack of national safety standards, the landscape of the cannabis industry in Canada is shifting in an uncertain direction with the whole world watching. Just as in any newly developing industry, the Canadian cannabis industry faces steep learning curves where stakeholders and the public are confronted with many unknowns. Now is a critical time to ask important questions about the safety aspect of this industry.

Growing Pains!

Let's for a minute think about Cannabis as a plant. As any living thing the cannabis plant goes through a series of cycles before it is harvested. It is important to understand that temperature, humidity, as well as the amount of light the plant receives play important roles in the growing process. The four major life cycle stages for cannabis plants prior to harvest stage are: germination, seedling, vegetative and flowering.

In the germination seed stage, the root is beginning to surface and the process usually takes 1-2 weeks. Next, as the

seed explodes, we begin to see the leaves form and multiply. This is called the seedling stage and depending on the type of strain being planted, the process can take from days to weeks. Ideally within the seedling period the temperature needs to be kept around 25°C with humidity of 60% with 18 hours of white light daily.

At the next stage the cannabis plant is starting to look like an actual plant and can grow as much as 5 cm daily. This is the vegetative stage and can last between 1-2 months. During the vegetative stage the temperature needs to be kept at around 20-25°C with humidity



ranging from 50-70%. Eighteen hours of white light dose is also needed daily. During the vegetative stage growers also start to use fertilizers.

Finally, we move to the bang for the grower's buck stage, or the flowering stage. This is the stage where the sticky resin, comprised of molecules including cannabinoids (remember the THC and CBD mentioned earlier) materialize. The flower stage lasted from 6-10 weeks, requiring temperature at 20-25°C and humidity ranging from 50-70%. At this stage growers are switching to orange or red light for half of the day and replacing it with total darkness for the other half. When the buds become thicker and reach full maturation, it is time for harvesting.

So why am I telling you of all these? The

fact that we are still talking about indoor plants already presents unique challenges. We discussed the need of light for the plants earlier. Why is it important? Well, plants, in their natural outdoor setting, require light to grow. They get different amount of sunlight throughout the four seasons and are sensitive to light changes that occur in each season.

In fact, the sensitivity to the variety of lights control the plants' growing cycle, the time to seedling, to vegetate, etc. Now bring all of that indoors. Growers must consider a system that will duplicate or even improve the lighting sce-

narios for the plants to grow and thrive. Some will go even further by controlling the number of hours of light the cannabis plants receive, to use them into producing additional harvests. So, lights are everywhere.

In addition, the facility will need to be equipped with other things to keep a smooth-running operation such as a HVAC system, pumps and other appliances which sometimes operate constantly. To sum up, keeping the plants inside is a power-hungry operation! Large operations usually have the capability to plan their electricity consumption ahead of time, but the problem lies with smaller and especially covert operations. Chaotic messy extension cords and overloaded circuits are typical samples of a non-compliant operation which

continued...

can easily create a fire hazard.

Constant pressure to make operations more profitable drives producers to maximize their limited real estate and fill their space almost completely. This means going horizontally and vertically. When the site is overpopulated, keeping an egress lane clear is a definite challenge. Without proper signage it is not hard to imagine someone unfamiliar with the site travelling in circles within a multiple room facility or a very large open room, wasting precious time in case of a real emergency such as a fire alarm. This can be a real hazard for first responders. It is also common for growers to separate rooms for the life cycle stages using plastic sheeting. Again, this is a path of egress issue, not to mention a potential non-compliant or fire hazard issue.

Due to a better understanding of how the Carbon Dioxide (CO₂) influences the plants' growth, cannabis growers are known to provide CO₂ enrichment in their grow rooms. Compressed liquid CO₂ and combustion of natural gas are the two most common methods used to do this. Unfortunately, CO₂ is considered an asphyxiant material. Leaks, which have been known to occur with both methods, are dangerous to people. If a room goes above the asphyxiate level, it may increase respiration and heart rate in a person, displace oxygen and cause rapid suffocation that can lead to death. Therefore, it is vital for rooms in the growing facilities to be properly controlled and monitored. The use of a CO₂ detection system that help alert people, interconnected with an exhaust fan and shut-off system that will bring back the air to the safety level, must be on the checklist of the regulators and AHJs.

Cannabis plants, just like any other plants, require essential nutrients to survive and grow. This is where fertilizer comes into the picture. Fertilizers when treated carelessly can be a source of hazard too. Ammonium nitrate, for example, when used properly as fertilizer is not likely to cause harm. However, from what we learned from the Texas City disaster of 1947, a mixture of ammo-

nium nitrate with combustible material or from the fire spreading to ammonium nitrate can cause an explosion. It is best to use fertilizers with low ratio or even no ammonium nitrate.

Being healthy from nutrients does not guarantee survivability as there are external factors such as pests (i.e. rodents, weeds, parasites, and insects) as well as diseases which cause continual trouble or distress to the plants. To control these external factors, growers often employ the use of fumigation and pesticides. Pesticides and methods of fumigation that are commonly used often involve toxic and dangerous materials.

A method that the AHJs must take seriously is the sulfur burner method which produces Sulfur Dioxide (SO₂) when heated. SO₂ is a colorless toxic gas and when inhaled can burn parts of the body that air passes through during breathing (i.e. mouth, nose, throat and lungs), presenting a hazard to those who work in the facility and first responders. Because chemicals are being used, regulation must be crystal clear. Approval must be sought for these chemical options. Furthermore, AHJs should insist on a detailed chemical record from growers to ascertain hazard classifications associated with the substance. To ensure proper fumigation meeting the minimum safety level, advance notice and a permit may also be made mandatory.

And Some More Pain

As the industry continues to grow, entrepreneurs have come up with various ways to introduce more products to the market. Did you know, for example, that Cannabis oil is one of the fastest emerging segments of the Canadian cannabis market? Cannabis oil can be easily altered in many different forms including paste, capsules, creams, spray as well as in edible forms such as candies or cookies. This is where we enter the processing and extracting part of the business.

It is important to note that processing and extracting cannabis, converting it to medical oils and other extracts is a complex, intensive and potentially dangerous process. This is where the actual return of investment lies, and licensed producers are competing hard to produce the best concentrate base cannabis products to create and meet the market demands. As an indication, weight per weight, concentrate cannabinoid currently is more valuable than gold and a future market is swiftly geared toward concentrated forms. Cannabis extract is produced by removing the famous THC and CBD from the plants. The process typically uses industrial solvents such as propane, butane, alcohol and liquid CO₂. There are two extraction systems known to be used, the closed loop and open blasting methods. The closed loop extraction is the most common method and requires

continued...



professional setup. It's called closed loop because no solvents are exposed to the open air. The solvents are contained within a closed loop that includes a large tank that holds the solvent, an attached tube, where the blasting is controlled and occurs, a recovery tank, a recovery pump, a refrigerant pump and a refrigerant scale to measure the weight of the recovery tank. As cannabis materials are placed into the extraction tube, which is attached to the pressurized solvent tank, the liquid solvent passes over the cannabis material, where its resin glands are gradually removed.

The open blasting method on the other hand, requires the pushing of butane through stainless steel tubes or glass packed with cannabis. The butane which is pushed in one end exits in another end directly into the open air. Not at all a safe process and should never be used in any extracting process!

The closed loop method is not without its hazards too. When a cylinder of the liquefied petroleum gases system (i.e. propane or butane) is opened, and the concentrates removed, it potentially releases volatile gases into the air. Making cannabis concentrate also uses an extremely high-pressure system and without proper design, installation and operation, these extractors can explode.

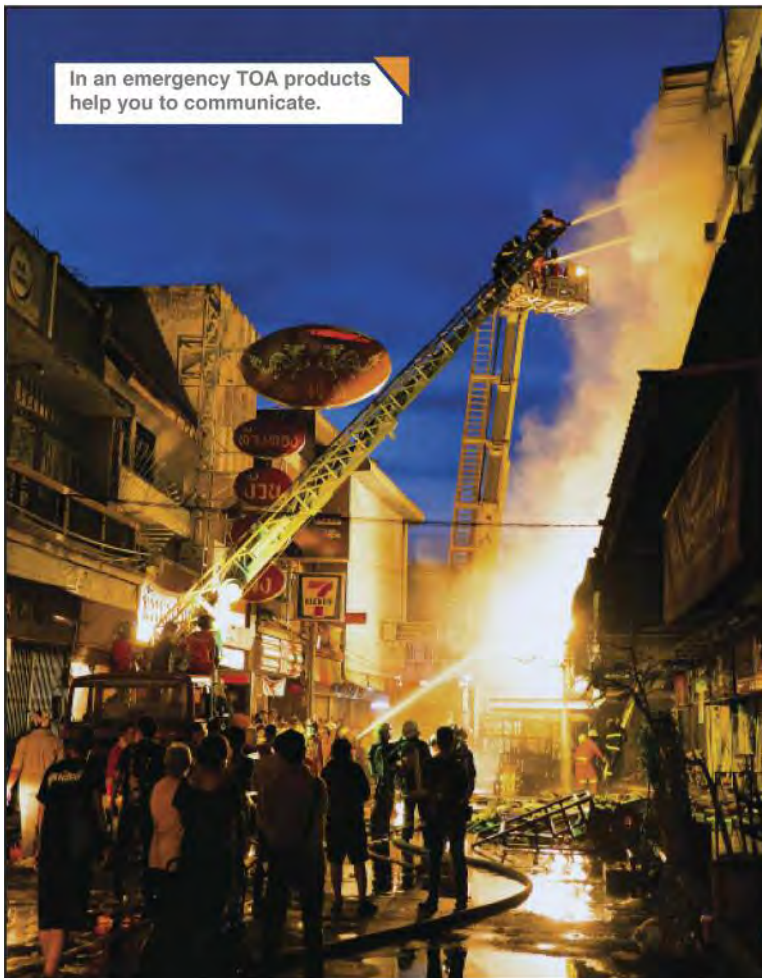
What now?

The assortment of hazards mentioned are just some of the most obvious examples being covered in this article. The truth is there are other hazards not discussed here or simply missed because of the broadness of this topic. Needless to say, Canada is off to a slow start when it comes to comprehensive fire and life safety standards for the cannabis industry.

But thankfully it is not all gloom and doom. Lessons learned from other

countries is a very valuable tool. Getting it right the first time is much better than trying to fix it later. Luckily too, we don't have to look very far. The City of Denver with its Fire Department, for example, has issued one of the most comprehensive policy documents regarding cannabis growing, processing and extraction facilities. **NFPA 1, Chapter 38** is also another valuable resource to study and compare. We can learn from others while developing our own best practice guidelines.

One more item of good news before I end the article. The Standard Council of Canada has identified the strategic need to develop a brand-new Standard for Safety of Buildings and Facilities Utilized for the cultivation, Processing and Production of Cannabis under CAN/ULC-S4400. A step in the right direction to create a national standard that can be applied across the country and used as a reference by all jurisdictions! ♦



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Heating equipment is a leading cause of home fire deaths. Half of home heating equipment fires are reported during the months of December, January, and February. Some simple steps can prevent most heating-related fires from happening.

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



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11 THINGS YOU CAN'T CHANGE, SO QUIT WASTING YOUR TIME TRYING

Buckle up for a reality check...

"You really can change the world if you care enough." ~ Children's rights activist Marian Wright Edelman

Is that all it takes—caring really, really hard? Or is it working 70 hours a week to the exclusion of all other activities? Or is it working smarter, not harder, that really instigates great change?

All of these have been recommended by someone at some point in time, but the fact is, there are some things you just can't change, no matter how hard you try.

In fact, continuing to beat your head against the wall is... well, not very effective, and pretty painful. So cut it out, would you?

Perseverance and tenacity are only good qualities when the objective you're working so hard to achieve is actually attainable. There's a lot in life you just can't change.



1. You're accountable to someone

Probably a lot of someones, depending on where you are in your life. It can be tempting to take shortcuts, bend the rules or stretch your ethical boundaries in the pursuit of what you think is the ideal outcome, but we all answer to someone at some point (that is, if answering to yourself isn't scary enough).

2. You're not going to live forever

Even in the midst of all the crazy, remember to take care of yourself. We push ourselves SO HARD; we're constantly "on," always connected, skip vacation time, and more. Americans (and I'd argue especially entrepreneurs) are fantastic at working ourselves into the grave. You won't enjoy your tomorrow if you were too hard on yourself today, so lighten up.

3. You can't please everyone

Seriously, just stop. Trying to make everyone happy is a thankless, soul-sucking endeavor that will only leave you drained and miserable.

4. You'll never catch up to the Joneses

You're always going to know someone with a nicer car, bigger house, better job, hotter partner, etc. Quit wasting your time trying to be someone you're not. Life's not a competition.

5. Holding that grudge is never going to have the effect you're hoping for

Unless what you're really after is prolonging your own pain and unhappiness. If that's what you're after, keep it up!

6. Similarly, you can't control what someone else thinks

You can suggest, demand, implore—you can scream it at the top of your lungs, but you can't always change another person's mind. You can't make anyone like, love or forgive you. You can't win their respect if they're not willing to give it. You just can't.

7. Yesterday is over. You can't get it back

There are no re-dos. Stop dwelling on the past; you can't change it. Pull your socks up and keep moving.

8. The world... nope, you can't change it

It's nice and inspirational and all to think one person could actually change the world, but some things are just bigger than all of us. You can definitely make a difference in the world around you — that's not a problem. Just watch that you're keeping your expectations of the impact you can actually have in check.

9. Where you came from

Privilege is a real thing, there's no denying it. You can't do a thing to change where you came from and the circumstances or situation you were born into, but you control where you're going. You might have to fight harder than others, and that sucks, but it's up to you to use what you might perceive as weakness or a detriment and make it work for you.

10. Nothing is ever really private anymore

This isn't going to change; in fact, our privacy will continue to be eroded away in the years to come. Your emails, cell phone use, photos, online footprint and more all tell their own stories with data. People do crappy things to each other for nefarious reasons. You just have to assume that nothing is ever really private and conduct yourself accordingly if you don't want the skeletons in your closet spilling out one day.

11. You can't get back what you've lost

You can replace a lost investment, or find a new mate, but there's no point trying to change the fact that sometimes, what's lost is gone forever. This is especially true of relationships—they might be rekindled, but they'll never be quite the same.

Quit beating yourself up and focus on developing the skills and traits that can make a tangible difference in your everyday life.