

The Ontario **ELECTRICAL CONTRACTOR**

Vol 55 • Issue 4 • Q4 2017



Moving Forward

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PROGRAMS PROMOTE A HEALTHIER,
MORE PRODUCTIVE WORKFORCE

Rate Framework

WSIB ONTARIO TO TRANSFORM HOW
PREMIUM RATES ARE SET

Power Shifts

THE IMPACT OF LOW-VOLTAGE DC
POWER DEVELOPMENTS ON THE
CANADIAN ELECTRICAL MARKET



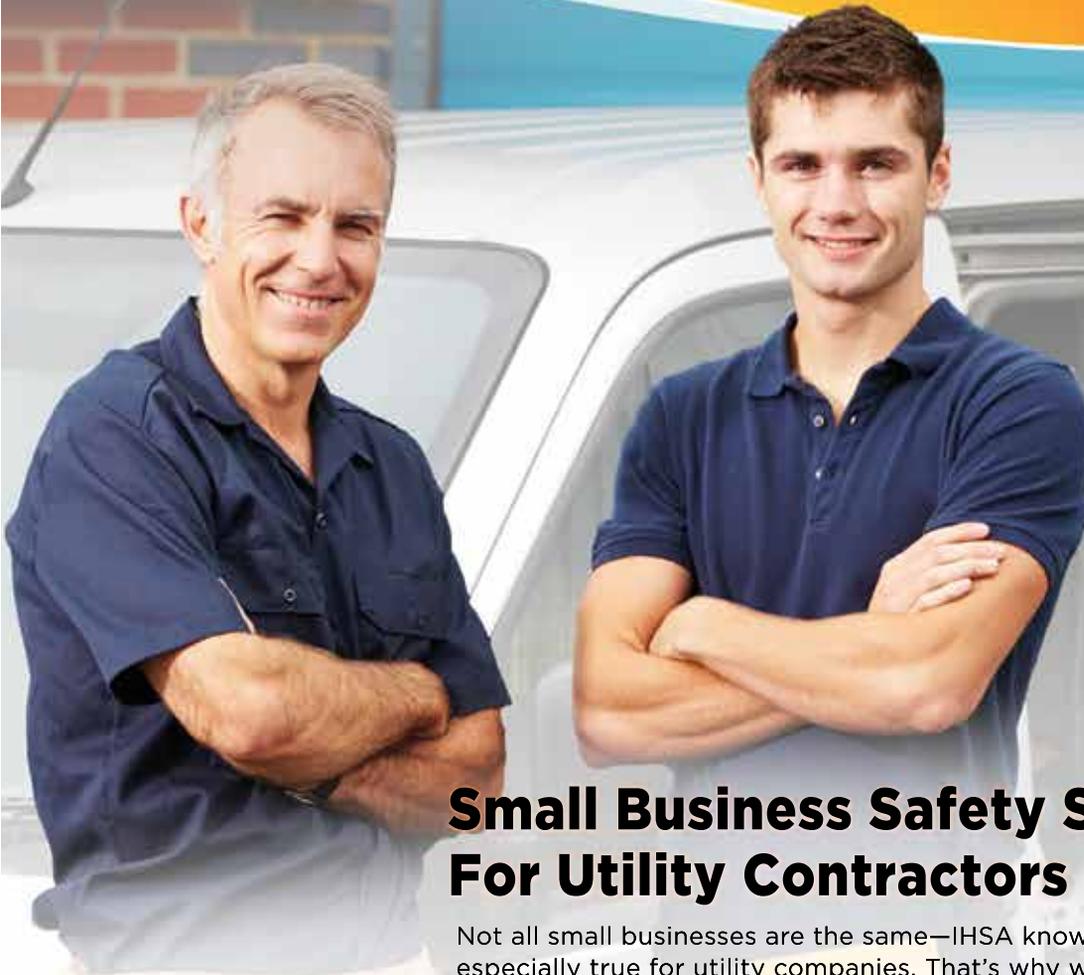
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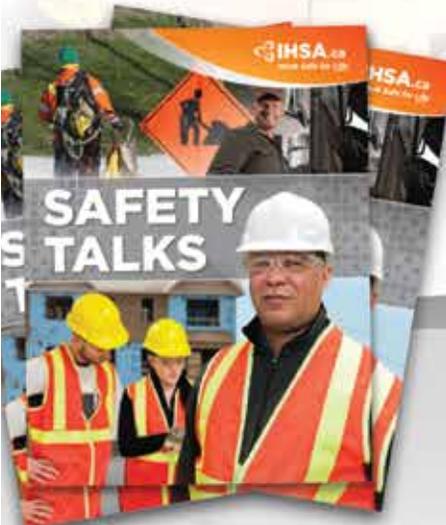


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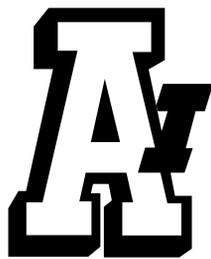
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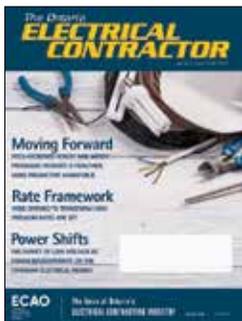
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FROM THE PRESIDENT, MARK LLOYD

Since this is my first President's remarks, I would like to start by sincerely thanking Dan Lancia for volunteering to lead the association for the last four years. He dedicated thousands of hours to get the association to where it is today, which is appreciated by the entire Board and staff at ECAO. Dan was not only President of ECAO, but was also Chair of our Electrical Trade Bargaining Agency (ETBA) for six years until Chris Cimek took over last year. Dan has been an exceptional ambassador for ECAO in his quest to make the electrical industry better for everyone.

Being involved with an association is a time commitment; time away from running your business and working at your regular job. I really

want to thank everyone who has volunteered to be on our Board, ETBA or committees, including the joint ECAO-IBEW committees. Our association needs industry involvement and input to represent and champion the interests of our members. As opportunities arise, I encourage you to volunteer to join one of our committees. The industry is changing and we need our committees to evolve to be reflective of those changes. We also welcome your suggestions on how we can improve – your opinions are important to us.

I would like to thank our members for putting their confidence in me to lead this association for the next two years. It is a role I take seriously and I hope to positively impact the electrical contracting industry. I am looking forward to a renewed focus of our association under new leadership to build stronger relationships with all of our stakeholders, especially with our IBEW partners. I also appreciate that each of the local areas have their own unique challenges and opportunities, and would like to see all of us work together to face the future as a united front.

For those of you who don't know me, I am a second generation owner-operator of T. Lloyd Electric Ltd., based in Hamilton, Ontario. I am also President of the Electrical Construction Association of Hamilton. My dad started the business in 1972 along with a partner, and my mother worked with them for over 35 years until they retired in 2010. I started working with my dad in 1990 and got my electrical license in 1996. When I started working for my dad, I remember the company being much smaller. I didn't receive any special treatment and was treated like one of the guys. My business partner, Rob Tyrell, and I now run the business with 40 full-time employees, which sometimes increases to 100 field employees depending on the economy and local projects. I balance my business and industry commitments with my family (my wife Nancy and two young daughters). I've been involved with the ECAO for the past eight years and believe that we need to be involved if we want to encourage and influence change. It's far too easy to just sit back and complain, but to make a difference you have to be at the table.

In this issue of *The Ontario Electrical Contractor* we included one of many stories you will find on the new Powering Communities website: www.poweringcommunities.ca This website was developed by



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Mark and his dad, Terry Lloyd.



Sherri Haigh, JEPP's Director of Business Development, as a way to highlight the impact of our ECAO-IBEW Partnership. Please take a few minutes to read the article and visit the website.

In this edition you will also notice a strong focus on health and safety with articles from WSIB, ESPS, Ground and TeksMed. Ground is a program inclusive to our members, and designed to help you create a comprehensive health and safety program. If you are interested in being COR certified or improving your health and safety program, contact Ground today (jen@groundprogram.ca). TeksMed is also a service the ECAO provides for our members. This service not only provides claims management services but they have a staff of paralegals to work on appeals and assist in accessing private healthcare at no additional cost. They will be introducing new reporting software in 2018 that will allow you to view your claims online.

Other articles include a profile on Sheryl Maisonville, Ontario's first female electrician, highlights from our AGM, and articles from Netco and Electro Federation Canada. We hope you enjoy this issue!

Registration is now open for our 2018 Conference in Barcelona, and we are continuing our relationship with Cubed Inc. since their service and attention to detail is second to none. I am looking forward to seeing many of you at the conference next May. You will find a link to the registration site on our homepage www.ecao.org.

As this is the last issue before the holidays and New Year, I would like to wish all of our readers a safe and happy holiday season and a successful and healthy New Year!

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ECAO AGM Report

ECAO held its Annual General Meeting at the Westin Airport Hotel on September 21. In addition to the regular business of an AGM, the members approved a revised ECAO Bylaw, which is available on the member section of our website. Dan Lancia presented Bob Ritzmann with an award of recognition for sitting on ECAO's Board for four years. Dan also presented ECAO's R. H. Carroll safety awards.

Congratulations to the following member companies on their achievements in safety excellence:

- Grid Link Corporation (Category: Rate Group 704 – up to 50,000 Total Work Hours)
- S & T Electrical Contractors (Category: Rate Group 704 – 50,001 to 200,000 Total Work Hours)
- Mellon Inc. (Category: Rate Group 704 – 200,001 to 500,000 Total Work Hours)
- Black and McDonald (Category: Rate Group 704 – over 500,000 Total Work Hours)
- Black and McDonald (Category: Rate Group 830 – over 500,000 Total Work Hours)

Mark Lloyd presented the Douglas J. B. Wright award to John Wright, the son of the late D.J.B. Wright, in whose name the award was originally created. John is a third generation partner at Ontario Electrical Construction Company

Limited (OEC) and currently Chairman of their Board.

In addition to his duties at OEC, John has always felt a strong obligation to serve the electrical contracting industry. John served on the GTECA Board of Directors for 16 years from 1998-2014 and was President from 2010-2012. He was a trustee on both IBEW Pension and Health and Welfare Plans from 2000-2014.

He has served on the Local Joint Conference Board, ETBA, Labour Relations Advisory Committee, Local Area Negotiating Committee and was Director of the Joint Apprenticeship

Council during his tenure at the GTECA. John also committed time to serve at the provincial level for the ECAO as a Director for the Joint Electrical Promotion Plan (JEPP) and Human Relations Committee.

John is truly one of the quality individuals to have served our industry. His father, Douglas J. B. Wright, would be proud of his son's accomplishments and consider him a very deserving recipient of the award in his honour. On behalf of the electrical contracting community in Ontario, ECAO extends its congratulations to John Wright!



Recipients of the Safety Awards, from left Past President Dan Lancia, Jim Paterson, S&T Electrical, Wes Pegg, Black and McDonald and Tracey Way, Grid Link.



Douglas J. B. Wright Award Recipient John Wright (centre) with his brother Tim Wright (left) and nephew Jordan Wright (right).

The 2017-2018 Directors are:

- Joe Kurpe, ECA, Hamilton
- Rob Boisvert, ECA, Quinte-St. Lawrence
- Gary Rossol, ECA London
- Anthony Tofano, Niagara Peninsula ECA
- Tim Birnie, Greater Toronto ECA
- Ove Bakmand, Greater Toronto ECA
- Kevin Martineau, Greater Toronto ECA
- Rick Ball, ECA Thunder Bay
- Gregg Mellon, ECA Sarnia
- Gary Ganim, ECA Ottawa
- John Salvatore, Windsor ECA
- Terry Moore, Central Ontario ECA
- Tim Scott, ECA, Northern Ontario
- Graeme Aitken, Line Committee
- Mark Quinn, Communications Committee
- Chris Cimek, ETBA Chair



Back row from left: Tim Birnie, Ove Bakmand, Joe Kurpe, Graeme Aitken, Mark Lloyd, Dan Lancia, Mark Quinn, Kevin Martineau, Gary Rossol, Rob Boisvert and Doug Dinniwell. Front row from left: Brad Walker, Ken Crawford, Chris Cimek, Terry Moore, Anthony Tofano, Gregg Mellon, John Salvatore. Missing: Gary Ganim, Rick Ball and Tim Scott

The following Officers were elected at the Board meeting following the AGM:

- Mark Lloyd, President
- Dan Lancia, Past President
- Brad Walker, 1st Vice President
- Ken Crawford, 2nd Vice President
- Doug Dinniwell, Treasurer

We concluded the AGM with Norm Keith from Fasken Martineau. Norm provided an informative presentation to the membership on developing a Fitness for Duty policy and procedure in response to cannabis and other drugs in the workplace. His presentation is available in the member section of ECAO's website.



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ECAO Announces 2017 Scholarship Award Winners

Alexander Powell, son of Michael Powell, E.S.Fox Limited, is studying Software Engineering at the University of Western Ontario. He believes you have to put 100 per cent effort into life, is a member of the Western Varsity Rowing Team, and over his summers he teaches at the St. Catharines Rowing Club.



Allyson Jugloff, daughter of Cathlyn Jugloff, Black and McDonald, is studying her Bachelor of Arts and Bachelor of Education at Brock University. Allyson decided upon this degree after completing a teaching co-op for five months before going to Brock.

James Lowther, son of Audrey Lowther, KROON Electric Corp., is studying Mechanical Engineering at Laurentian University. Since physics has been his favorite subject, his choice of engineering makes sense and his education will help him continue to learn how things work.



Justin Struk, son of Larry Struk, Aecon Industrial Central, is studying Software Engineering at Conestoga College. His long-term goal is to get a degree in Computer Science Software Engineering so he can one day have a career in program development using innovative systems engineering abilities.

ECAO Open House 2017

Another successful Open House was held at the ECAO offices on September 20. Great food and good company was shared by all. ECAO contractor members and industry partners were able to network with some of our Affiliate Partners. Thank you to everyone who participated!



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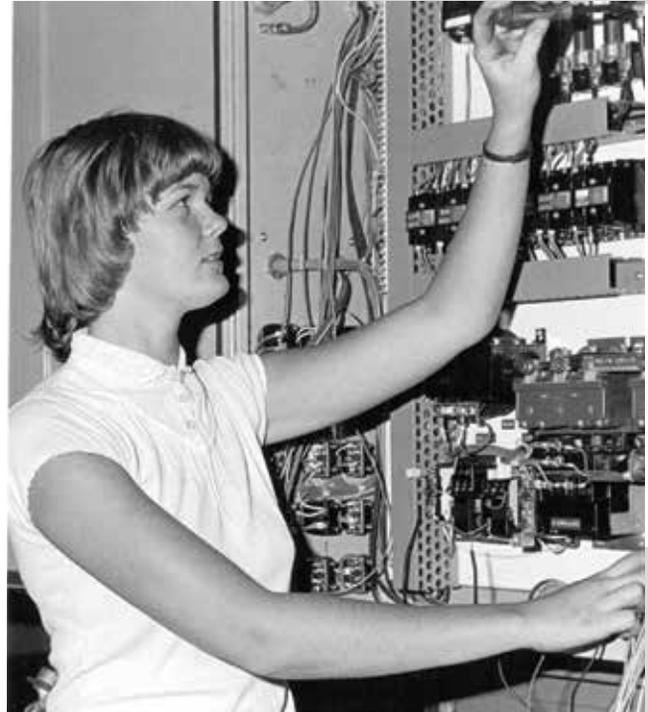
“Just Go For It”

Says Sheryl Maisonville of Rorison Electric Ltd.

That's what Sheryl Maisonville, first female electrician in Ontario would say to women who want to get into the electrical trade today. When she looks back on her days in the trade she says, “It is totally different today for women trying to get into the trade. Back in the day I had to share bathrooms and change rooms with other male electricians.” Sheryl believes that if women want to get into the trade, “They should just go for it.”

Sheryl Maisonville's path towards being an electrician came to her when she was only five years old. There was never any question that she would follow her father's path into the trade. Her father, Leo, worked for Rorison Electric as a superintendent and eventually became an owner. Rorison Industrial Electric Limited was incorporated in 1953, providing design and installation of industrial applications including electrical products, machine tool and automation control systems. In 1978 women won the right to enter the IBEW, right before Sheryl became a 309A.

To this day Rorison Electric Ltd. is a proud member of Windsor Electrical Contractors Association (WECA), ECAO and signatory to IBEW Local 773.



Sheryl started her apprenticeship under her father at Rorison Electric in 1975 at the age of 21. She completed her apprenticeship through the Essex Kent Joint Apprenticeship Training Council (EKJATC) and now she is the contractor representative on the EKJATC. Her on-the-job training included going to various job sites and other electrical contracting companies which enabled her to obtain a broad knowledge and experience in her trade. She obtained her Certificate of Qualification in 1979, and was recognized as the first female electrician in Ontario.

True to the definition of Journey person, she moved to Alberta for a while during the early 1980s. She returned to work in Ontario with State Electric for four years, and then on to the Canadian Standards Association as a Certification and Testing Field Inspector.

In 1989 she returned to Windsor and bought into Rorison Electric, becoming a partner with her brother Randy. As of September of this year, the business is owned by her nephew Jon Maisonville and long time superintendent Michael Hope.

Although Sheryl never let the fact that she is female dampen her determination, statistics show that women are still not entering the trades. Even today, they make up only 1 per cent of all electrical trades, based on the 2009 Census. She continues to be active in electrical industry events, and she, her nephew Jon, and a group of Windsor members attended the 2017 ECAO Conference in Munich.

In a recent interview with Sheryl, she had some advice for women looking to get into the electrical trade, “I can't speak for other trades, but I know that in this one you can't be scared to get dirty, to break your nails. You can't be afraid to walk into a plant of 500 guys; you've got to stick your head high in the air and say, 'I belong here too!'”

Sheryl and Randy continue to work at Rorison Electric with the new owners.



From the left—John and Tiz Salvatore, Whit and Liz Tucker, Franco Favaro, Jon Maisonville, Sheryl Maisonville, Susan Favaro



Rate Framework

WSIB Ontario to transform how premium rates are set

Article provided by WSIB

The Workplace Safety and Insurance Board is set to transform how it calculates premium rates for almost 300,000 registered businesses across Ontario. We are introducing a new premium rate setting model that is more simple, easy to understand and will be more reflective of individual claims experience. Following a multiyear engagement with businesses all across the province, the new premium rate setting model is a big step forward in making it easier to understand how businesses are classified and how premium rates are calculated. Another major benefit of the rate framework is the ability to see the direction premium rates are headed in the future.

What's changing?

We understand that changing the way we calculate premium rates for businesses across Ontario cannot happen overnight. In advance of implementation on January 1, 2020, we want to make sure that businesses are aware of what to expect under the new model.

For example, we are replacing the current classification system based on the Standard Industrial Classification (SIC) coding system with a new system called the North American Industrial Classification System, or NAICS. By switching to NAICS, we will be using the same system Statistics Canada and the Canada Revenue Agency use to classify businesses all across Canada. It will help us simplify and streamline our classifications, making it easier to understand why businesses are classified the way they are. In the rate framework, your business will be assigned to a Predominant Class. This is generally based on the Class that represents an employer's largest percentage of insurable earnings.

The new system will ensure that premium rates are fair and transparent. When calculating premium rates, your business' individual claims experience will be taken into account so you will be paying a rate based on your actual workplace injury history. We will also provide businesses with something called projected premium rates. Projected premium rates show you the future direction (up or down) of your insurance premium rates. This new rate information will allow businesses time to prepare and adjust for future rate changes. Changes to premium rates will be capped so they are spread over time to allow businesses to adjust to any changes gradually.

The new model will not affect the overall total amount of premium dollars collected by the WSIB. The rate framework is revenue neutral and we will continue our risk sharing arrangement among all employers who collectively pay premiums to maintain the insurance fund.

What's changing in construction?

Since we are adopting a new standardized approach to classifying businesses and will be using the NAICS structure, the construction industry will see a classification change. Employers that engage in business activities in the construction industry will be assigned one or more NAICS codes that fall under Class G, Construction and will be assigned a premium rate in Class G. Make sure you check out our website for more information, www.wsibratereform.com

Your new premium rates will be more reflective of your individual claims experience. It's important to remember that any changes to your premium rates will be phased in over time, to allow businesses to adjust to the new rates.

What's next?

In September 2017, we launched an extensive engagement campaign about the rate framework. This engagement campaign started with sending a letter to every business registered with the WSIB with information about the rate framework, the new classification system and what your classification will be in the new model.

This was the first step in making sure businesses remain informed and aware of what will be changing in the rate framework. Our aim is to continue to engage with businesses as we transition into the new model. This year, we will begin providing further information to help you prepare for implementation in 2020, including what premium rates will look like under the new model. We will also be holding information sessions and webinars for employers all across the province, to help you understand what's changing and what to expect in 2020.

What should you do?

To support the launch of the new model, we have created a dedicated website – www.wsibratereform.com – with all the latest news, updates and information about the rate framework. Please check the website often to stay engaged and up-to-date as we transition into the rate framework.

Moving Forward

Well-designed health and safety programs promote a healthier, more productive workforce

By Jennifer Mei Fisher, B.Sc. Hon

Hindsight is 20/20 when an accident happens. In the workplace “cause” of an accident is typically determined through incident investigation, which undoubtedly provides incredible opportunity for growth and allows us to learn from our mistakes.

However, work related death, injury, illness, and disease are not an inevitable and acceptable cost of doing business. Most workplace accidents/incidents are preventable, and proactive prevention initiatives that go beyond minimum compliance are essential to aid in eliminating the cause altogether.

Ontario workplaces are responsible for being compliant with the *Occupational Health and Safety Act* (OHSA) and other contributing legislation – both Acts and regulations. The main purpose of the OHSA is to protect all workplace parties from health and safety hazards on the job. It sets out duties for all workplace parties and rights for workers, and provides for enforcement of the law for non-compliance. The continued evolution of the OHSA has strengthened the requirements on workplaces and has reinforced the Internal Responsibility System

(IRS) and other fundamental workplace structures such as the Joint Health and Safety Committee (JHSC). It is Ontario’s cornerstone legislation and is vital to workplace health and safety.

The MOL report recognized the importance of a strong organizational culture and commitment towards health and safety in workplaces.

Nevertheless, the OHSA is largely based on a reactive system. Compliance to the OHSA, otherwise known as the “green book,” should be considered minimum compliance, but this is not new information. According to a 2010 report from the Ministry of Labour (MOL)

Expert Advisory Panel on Occupational Health and Safety, further measures must be taken. As stated in the report, “minimum compliance alone will not allow us to realize Ontario’s vision of zero workplace injuries, illnesses, and fatalities.”

The report goes on to say, “Workplaces therefore need encouragement to go beyond minimum compliance in order for the province to build a strong health and safety culture.” The MOL report made several recommendations towards reaching this goal, including a system that provides appropriate incentives and disincentives. For the full report visit www.labour.gov.on.ca/english/hs/prevention/report/.

Enforcement-based disincentives to motivate behaviour (i.e. fines, or even criminal charges) are controlled by the MOL, while the Workplace Safety and Insurance Board (WSIB) administers both financial incentives (i.e. rebates, premium rate reductions) and disincentives (i.e. surcharges, withholding of rebates)*. Although the best way to avoid incurring costs is to be proactive and avoid



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injury claims altogether, when providing a monetary reward as a safety incentive program the incentive itself may actually cause more harm as it can discourage employees and managers from reporting an injury/incident. This, in turn, has the potential to create a culture which discourages proactive behaviour by encouraging a non-reporting practice, which will inevitably lead to a serious accident/incident. *Please note: with the new WSIB rate framework the financial incentives/disincentives are changing. For more information visit www.wsib.on.ca.

This further highlights the need to diversify prevention and enforcement activities through education/training and proactive prevention initiatives. As part of this multi-faceted approach to its task, the MOL report also recognized the importance of a strong organizational culture and commitment towards health and safety in workplaces. In recent years important progress has been made to this end, building off of the contributions of the Expert Advisory Panel 2010 Report, and the Healthy and Safe Ontario Workplaces Strategy developed by the MOL in 2013. This strategy focused on two goals: first to target the areas of greatest need; and secondly to enhance/integrate service delivery, enhance partnerships, and promote a health and safety culture. According to this report factors that influence a workplace's approach to occupational health and safety are its awareness of occupational health and safety rights and responsibilities, and the consequences of not meeting legal requirements. The strategy focused on six strategic priorities. For the full report visit www.labour.gov.on.ca/english/hs/prevention/strategy/.

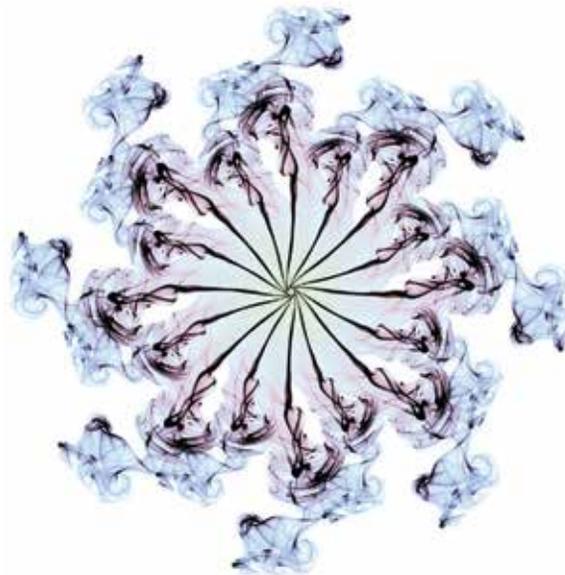
Currently, the MOL is focused on implementing the Construction Health and Safety Action Plan, released in May 2017. The plan furthers the ideas of going beyond minimum compliance. It sets out to accomplish two goals: first creating a more knowledgeable and skilled system and sector which includes enhancing the Internal Responsibility System (IRS), increasing access to new and existing resources and improving training and education in the sector; and second, increasing construction sector compliance which includes ensuring regulatory requirements are up-to-date and effectively communicated and understood, setting appropriate penalties and incentives and focusing strategic enforcement initiatives on priorities. The plan is focused on seven themes— Social Marketing and Awareness, Workplace Participation, Youth and New Workers, Education and Training, Legislation and Regulation, Supervision, and

Partnerships and Collaboration— and makes 16 recommendations to make progress towards these goals. For the full report visit www.ontario.ca/page/construction-health-and-safety-action-plan.

Well-designed and well-managed health and safety programs contribute to a much healthier, more satisfied and more productive workforce which in turn has the added advantage of a significant financial upside for your organization. Identifying hazards and assessing risks in your workplace is one of the most crucial processes in your occupational health and safety management system. Including proactive prevention initiatives in your workplace will promote health and safety

and go above and beyond minimum compliance. A safe environment free of hazards along with effective safety training and ongoing programs to promote safe work habits are just some of the keys to preventing work related death, injury, illness, and disease. Most workplace accidents/incidents are preventable.

Contact GROUND Inc. for more information or assistance in moving forward on this initiative. Ensure a safe and healthy workplace for all by preventing injury and illness proactively. www.groundprogram.ca



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For more information, or to take advantage of these services, contact Tanya George at 416-491-5444 / tgeorge@teksmed.com or call toll free 1-877-850-1021.

TeksMed Services is a proud affiliate partner of the ECAO, offering a complete WSIB claims management solution to all ECAO members, that's proven to mitigate lost time and its effects with a focus on employee health and ability.

What does this mean for ECAO members?

When a workplace incident occurs TeksMed's licenced paralegals will combine their disability management skills and legal expertise to comprehensibly manage your WSIB claim. They understand the legislation and strategically manage claims to ensure companies are meeting their legal requirements and maintaining positive CAD-7 performance. Our paralegals provide support from the onset of workplace injury with initial form filing, follow up on return-to-work initiatives and provide guidance to employees and employers until claim conclusion.

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What is Arc Flash Training?

By Jim Pollard



The term “arc flash training” has become part of our vocabulary, but what does that really mean? An arc flash is only one identified electrical hazard, along with associated arc blast and shock. Shock is actually far more dangerous than arc flash and results in the majority of electrical related workplace fatalities. However, the industry has adopted the “arc flash” term as a catch-all used to describe electrical safety training, electrical engineering studies, electrical safety programs, electrical-specific personal protective equipment (PPE) and more. This is likely due to the violent and explosive nature of an arc flash hazard. Often we can’t even “see” a shock hazard. An arc flash incident catches everyone’s attention, similar to a car chase scene in a blockbuster movie. So what is arc flash training? Or, what should it be?

Electrical Safety Training Requirements

The industry-accepted best practice used in Canada is the CSA Z462 Workplace Electrical Safety Standard. The topic of training is extensively covered under the Clause 4 Safety-related work practices. The Standard provides great detail for employers to use for guidance, including: the requirements for training, type of training, emergency procedures training, LOTO training, contact emergency release training methods, first aid (emergency response and resuscitation), training verification, worker training for Qualified vs. Unqualified persons, retraining and training documentation. Clearly the CSA Z462 Standard requires more than just arc flash training!

In summary, the following training requirements are specified:

- Training shall apply to all workers exposed to electrical hazards.
- Workers shall be trained to understand the risk associated with electrical energy.
- The training shall cover safety-related work practices and procedural requirements.
- Worker training shall be specific to job or work task assignments.
- Workers shall be trained to identify and understand the hazards and possible injury.

ARC FLASH TRAINING

The type of training could be summarized as follows:

- Training shall be classroom or on-the-job, or both.
- The type and extent of training required is determined by the risk to the worker.

Acceptable Types of Training

The classroom training requirement could be either a physical or virtual classroom. Instructor-led courses delivered in a physical classroom environment are the most popular delivery format, however, advances in adult-oriented eLearning course development now provides a credible, viable and compliant alternative. As we continue to evolve with more innovative training formats, the possibilities become:

- Instructor-led classroom;
- eLearning (virtual classroom); or
- Blended learning.

eLearning vs. Instructor-led Training

With the time, worker attrition and cost-related pressures on employers today, eLearning courses can be a valuable training option. Similar to how one instructor could be more knowledgeable compared to another, not all eLearning courses are created equal. The best type of eLearning course engages the student in the learning process with interactive elements, provides

learning aids such as a student workbook, allows the student to ask the instructor questions about their course and uses both 2D and 3D graphics. For eLearning to be an effective training format, the course needs to be compliant by including sufficient content to meet the full requirements of the CSA Z462 Standard.

Time Commitment

Another topic of debate within the electrical industry is how much time is needed to adequately cover the full training requirements from the CSA Z462 Standard. This is different for Qualified versus Unqualified persons. For a Qualified Electrical Worker the average instruction time is two days. That's two full days of having workers demobilized in a physical classroom. With the availability of compliant eLearning course options, employers can use a blended learning method to reduce the time workers spend in a physical classroom. The blended learning method uses eLearning to provide a prerequisite knowledge base followed by a focused application session using an instructor either in a physical classroom and/or on the job.

A company's electrical safety program should define what electrical safety training is, what worker role should receive it and at what frequency.

Qualified Electrical Worker

Completion of electrical safety training is one step towards becoming a Qualified Electrical Worker. Training is knowledge transfer using one of many methods as noted above. For training to be effective and credible it needs to be comprehensive in all requirements and include an assessment; refer to the CSA Z1001 Standard for additional guidance. As per the CSA Z462 Standard, for a worker who is undergoing training to be considered a qualified person, that worker must demonstrate their ability on the job or in the field to apply the skills and knowledge gained from training. Furthermore, it's the responsibility of the employer to determine on at least an annual basis that each worker is complying with the safety-related work practices that were provided as part of that worker's electrical safety training. When gaps are identified workers shall be adequately retrained.

A competency validation process is recommended for employers to validate and document a worker's capability of applying electrical safety skills and knowledge. Electrical safety competency validation is separate from determining if a worker has adequate technical or trade qualifications. Competency validation is the responsibility of the worker's supervisor and must be confirmed by interviewing, testing and observing a worker.

Practical Application Training

Generic training is the most common option available on the market. However, an off-the-shelf product does not address an employer's specific policies and workplace electrical safety-related



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work practices that are defined by its electrical safety program. Furthermore, training based on the CSA Z462 Standard may not include relevant knowledge such as practical application exercises. When electrical safety training includes practical application lessons, the course is more effective at providing a Qualified Electrical Worker with the skills and knowledge necessary to complete work tasks. Workers can be lulled to sleep during a training course that only covers the generic Clause content from the CSA Z462 Standard.

Ultimately, a company's electrical safety program should define what electrical safety training is, what worker role should receive it and at what frequency. Electrical safety programs can use Qualification & Training Matrices to easily communicate training requirements for each role.

A Matter of Life or Death

Workplace electrical safety training is more than checking a box. It's more than just arc flash training. Electrical hazards in the workplace can cause a severe or fatal injury and the risk can be high for workers exposed to them. The training they receive and how an employer follows up on the application of that training in the field is a matter of life or death.

Jim Pollard is a Subject Matter Expert on arc flash personal protective equipment (PPE), whose experience and technical knowledge has been tapped by technical committees in Canada and the USA including CSA Z462, ASTM F18.15, CAN/ULC-S801, CSC/IEC/TC78 and ULC Live Working. Jim's company, Unlimited PPE Inc., performs as a Sales Agent for the Oberon Company (www.arcflash.com), Danatec Educational Services Ltd., Electrical Safety Division (www.danatec.com) and PROXXI Corporation (www.proxxiband.com).

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IBEW CCO's Exec. Secretary Treasurer John Grimshaw (left) with Ampere Ltd. President Kelly Burke (right) at the Mount Dennis station construction site.



Highly-Skilled Electricians Help Ensure Safe, Reliable Transit for Future

The people behind Toronto's light rail project By Sherri Haigh, Powering Communities

It's one of the biggest infrastructure projects in Ontario history, and one of the biggest in the world. But when it's completed, the Metrolinx Eglinton Crosstown light rail system will transform mass transit in the Toronto area.

Yet few may appreciate what happens behind the scenes to ensure such a massive and complex initiative is completed properly, safely and on time.

"To date, we are on track both from a budget and timing perspective. But most importantly we also make safety and proper training our most important priority," says Kelly Burke, President of Ampere Ltd. His company is a member of the Electrical Contractors Association of Ontario (ECAO) and exclusively utilize high-calibre electricians from the IBEW Local 353.

"Our IBEW electricians are highly educated and professional which is why we have a long-standing relationship with them, having worked on many of the city's largest projects together," he added.

Ampere Ltd. is responsible for the power for three stations and supplying power for the tracks while the line is being built. In the end, the project will connect three subway lines, 54 bus routes, several GO Transit lines, and the Union-Pearson Airport express. It will be able to carry up to 15,000 passengers per hour per direction. It will also be wheelchair accessible, and use proven technology to withstand Toronto's climate.

In summer 2016, the tunnels for the eight kilometre underground portion were completed, and the work of building the stations and laying the track began. That's when Ampere Ltd. got involved.

"I've been in the business for over 30 years. You can hire inexperienced workers for less, but you're just not going to get the same level of



Part of IBEW Local 353's Mount Dennis on-site team with their Business Manager, Steven Martin (centre, blue helmet).

workmanship or the same level of seriousness when it comes to safety. Who wants to compromise on public transportation?" says Burke. "Let's face it, together we're the very best of the best in our industry. Toronto is getting installation and operation worry-free."

"Crosslinx has a commitment to supporting the community, and providing apprentices with the opportunity to gain valuable experience," said Donna Scrimgeour, Aecon's Project Manager for the Mount Dennis station.

"Mount Dennis Station has a complex electrical and communication support system that relies heavily on the competent skills set of our highly trained electricians. At Mount Dennis Station we are pleased to have Ampere Ltd. on our team."

Safety Can Be a Project's Weakest Link - Or Its Greatest Strength

For massive infrastructure projects, any accident can not only be tragic, but can lead to costly delays that can affect the entire project.

"Ampere Ltd. has had no lost time incidents on this project, and in fact we've been injury-free for the past two years. There's simply no other contractor in the world that can match the safety record of the IBEW-ECAO."

As an organization, Ampere Ltd. invests hundreds of thousands of dollars on safety training and equipment every year.

"We want our electricians to enjoy their work every day and go home to their families every night. When workers know you're concerned for them, they become concerned for you."

Safety is a Two-Way Street

Paul Cameron, a journeyman electrician with IBEW Local 353, has seen a lot in his 33 years of experience.

"It feels really good to work on a project like this," he says. "About 20 years ago I did a TTC job, and this is reminiscent of that work, but really it's changed a lot over the years, with the technology."

With those advances, safety has become more important than ever. "Since I started, safety has really come forward a lot," says Cameron.

Fifth term apprentice Chris Dilauro (also from Local 353) agrees. In fact, the emphasis on safety is part of what he likes about working with ECAO contractors.

"Absolutely. You always feel safe, and no one makes you do anything that they wouldn't do themselves. If there's anything that needs to be addressed, it gets addressed," says Dilauro.

Workmanship Toronto Can Count On

In 2021 the system will come online and begin its role in enabling the movement of millions of Torontonians every day. The new system will bring greater efficiency to their lives, making Toronto a more efficient and livable city.

"We are proud that this subway system will run flawlessly for hundreds of years to come," says Burke.

Members who would like to have a project considered for the Powering Communities website are requested to contact Sherri Haigh, Haigh Communications, at sherri@haighcommunication.com



Safety is a top priority at the Mount Dennis construction site, so that electricians can concentrate on getting the job done.

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NETCO's 2017



Training Conference Features Forum on Technological Change

By Carol MacLeod

The National Electrical Trade Council (NETCO) held its 9th annual training conference in Montreal, Quebec, on August 19-20, 2017, to share best practices that promote excellence in apprenticeship and continuing electrical training. The conference has earned a reputation as a must-attend national forum for training directors, instructors and trustees of joint apprenticeship and training committees from electrical contractor and IBEW communities.

The Canadian Electrical Contractors Association (CECA) and International Brotherhood of Electrical Workers (IBEW) Canada—the national industry sponsors of NETCO—jointly launched NETCO in 2006 to provide strategic leadership on workforce development issues. ECAO and the IBEW-Construction Council of Ontario (IBEW-CCO) are funding partners. ECAO Director-at-Large (Past President) Dan Lancia serves as a NETCO Director. Approximately 40 per cent of conference delegates were from the Ontario electrical industry.

“NETCO’s annual training conference is a once a year opportunity for our industry partners to learn about innovations in training that will help Canada maintain a competitive edge,” said David Mason, Treasurer of NETCO and President of CECA. The 55 delegates share a commitment to developing a certified, highly skilled and mobile workforce that meets the needs of the electrical construction industry.

One of the highlights of the conference was a four-person panel presentation on technological change followed by an industry consultation. Evaluations indicated that this session captured special attention. Thank you to Greater Toronto Electrical Contractors Association (GTECA) Executive Vice-President Robert O’Donnell and Ontario Electrical Industry Training Trust (jointly sponsored by ECAO & IBEW-CCO) Training Coordinator Peter Olders, RSE, for suggesting the topic.

Queen’s University Associate Professor of Industrial Relations Dr. Robert Hickey presented preliminary research commissioned by the GTECA on technological change in the industrial, commercial and institutional (ICI) construction sector and its effects on workplace organization, processes and skills. Peter Olders, RSE—a recipient of NETCO’s prestigious 2017 Leadership Excellence Award—followed with an authoritative presentation on Power Over Ethernet. The electrical training ALLIANCE™ Executive Director Todd Stafford and Assistant Executive Director Dr. James Boyd offered insightful commentary informed by the experience of IBEW and NECA stakeholders in the U.S. Stay tuned for more details; NETCO is developing a summary report for distribution as a post-conference deliverable.



NETCO’s 2017 training conference also included a forum on Aboriginal training partnerships, showcasing best practices in British Columbia and Newfoundland to provide new pathways into the electrical trades for Aboriginal apprentice candidates. First Nations and Aboriginal business are increasingly influential across Canada in terms of entrepreneurship and skills training. Delegates benefited from hearing about two approaches to bringing electrical industry resources to the table for the mutual benefit of trainees, communities and the industry.

NETCO also has a mandate to advocate on workforce development issues important to the electrical industry. A face-to-face meeting with The Hon. Patty Hajdu, Minister of Employment, Workforce Development and Labour, took place following the training conference.

Next year NETCO’s 10th annual training conference will take place on June 9, 2018, at the Fairmont Tremblant in Mont Tremblant, Quebec. Online registration with a special early-bird rate will be available on NETCO’s dedicated conference website in December 2017 (<http://www.cvent.com/d/15qzm7>). The date and location enable NETCO conference delegates to transition to the Canadian Apprenticeship Forum 2018 conference scheduled for June 10-12, 2018 in Montreal. Join us!

Carol MacLeod is the Executive Director of the National Electrical Trade Council.

Power Shifts

The impact of low-voltage DC power developments on the Canadian electrical market

By Swati Patel, Director of Research & Communications, Electro-Federation Canada

Change is a common factor impacting every business in all industries today. In the electrical industry, the accelerated rate of change is a result of new social responsibility behaviours among end-users, caused in part by new concepts such as smart cities, electric vehicles and net zero homes and buildings. More than ever before, end users expect flexible, efficient systems and applications that interoperate and offer end-to-end solutions, both at home and at work.

This very demand has resulted in a transition from electrical to digital systems, and the emerging low-voltage power options to supply them—impacting every aspect of the traditional electrical channel from product conception, production, sales, delivery and installation. Equipping the channel to embrace emerging technologies, specifically those related to low-voltage direct current (LVDC) power developments, and opportunities that can be drawn from LVDC systems, is the premise of a new study published by Electro-Federation Canada.

This report details the growing demand for LVDC-powered systems in the electrical market by studying a number of factors, such as the upcoming changes to the Canadian Electrical Code and the emergence of new partnerships and market players.

Codes & Standards

The interest in LVDC and Power over Ethernet has introduced a gap in the Canadian Electrical Code between data and communication systems...and powered devices. Regulators all over the globe are collaborating with industry to refresh existing electrical codes, and in particular, to clarify and establish codes and standards for combining power and communications over the same cable. As well, with data now morphing to become data and power together over low-voltage systems, the Code will also need to address these concerns:

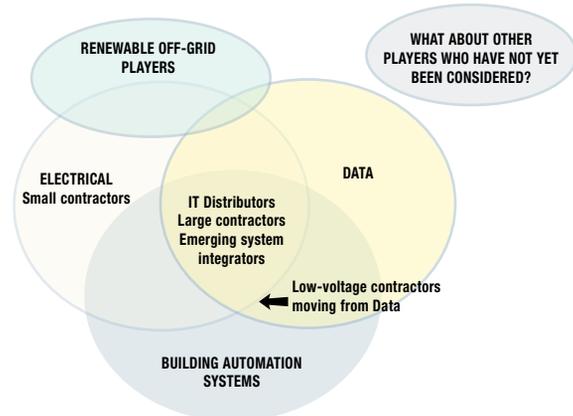
- Does the Code now apply?
- Are permits required?
- Are inspections required?
- Who's allowed to do the work?
- Does it have to be a licensed electrician?
- Does it have to be a licensed electrical contractor?

These concerns are especially important to your contracting business, as you begin examining ways in which these changes might impact your service offerings—especially now, as the onset of new installers begin emerging.

New Partnerships & Market Players

As manufacturers continue developing new products and solutions to address end users' needs, they require a channel through which they can quickly and cost-effectively get their products to market. To this end, a new class of installers and solution providers, such as datacom specialists, system integrators, security-solution providers and electronic distributors, have emerged who have electrical skills matched with IT knowledge of electronics and software; a pairing especially important when we consider the safety, cybersecurity and privacy concerns associated with the new systems and applications in demand.

Figure 4: Collision of Cultures within (and beyond) the Electrical Market



Collision of Cultures: IT distributors and system integrators are playing on both sides of the field – electrical and data. At the same time, large electrical contractors are establishing data wings and low-voltage contractors are moving from data into electrical installations. Renewable off-grid players and building automation systems' players are also entering this new hemisphere.

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Strategic partnerships are also developing to promote LV adoption. Consider these recent developments:

- Cisco partners with electrical manufacturers to offer connected Power over Ethernet (PoE) solutions;
- Armstrong Ceiling Solutions teams up with electrical manufacturers to install LVDC-powered ceiling-based integrated systems for lighting, sensors and controls and other digital devices;

Regulators all over the globe are collaborating with industry to refresh existing electrical codes.

- Telcos expand their traditional utility role – e.g. Verizon acquires a lighting controls company and also Yahoo;
- HVAC contractors acquire electrical contractors;
- Niche distributors specializing in electronics, renewable energy and low-voltage solutions are both emerging and evolving.

These alliances demonstrate how quickly LVDC technology has blurred the lines between installer and service provider roles.

These developments are happening now and serve as a reminder for the electrical industry to rethink overall framework to understand new channel players. As an industry we must gain a better understanding of the outside forces that are moving into the inner folds of our channel. Consideration must be given to whether we form relationships with the new emerging players—or do we allow them to become competitors working in isolation from our channel?

To Compete or Collaborate?

Each business will need to determine which path to take as they work toward meeting growing customer demands. Contractors and other installers will need to consider if they want to expand their core offerings to include services currently offered by the new segments, or collaborate with new players and complement one another's skillsets. The latter is particularly important, as systems become more complex and require integrators to have a deeper understanding of electrical regulations and for our traditional channel to gain more knowledge about the interoperability of products and solutions.

To gain full insight on how LVDC-powered systems will impact the electrical market and what opportunities your business can expect to derive from this new technology, purchase EFC's Power Shifts report at <http://www.electrofed.com/power-shifts> \$100 plus HST (printed version); \$150 plus HST (digital version). If you have any questions or would like to be involved in discussions about this topic, contact Swati Patel at spatel@electrofed.com.





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- A. a heat detector
- B. a duct detector
- C. a smoke detector

D. a manual pull station

E. no detection devices

3. In a 2 stage fire alarm system that has been zone coded, the coded alert must be repeated for not less than:

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C. 4 times

D. 5 times

E. continuously

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