

The Ontario **ELECTRICAL CONTRACTOR**

Vol 55 • Issue 1 • Q1 2017 • www.ecao.org

Thousands Protest Amendments to College of Trades Act

Pg. 8

Helmets to Hardhats Pg. 12

Helping Canadian Veterans transition to skilled trades

Understanding Your Licensing Responsibilities Pg. 14

Five things all LECs should know

Sign Here! Pg. 10

What you need to know about signing contracts

ECAO
ELECTRICAL CONTRACTORS
ASSOCIATION OF ONTARIO

The Voice of Ontario's
ELECTRICAL CONTRACTING INDUSTRY

PM40063602



Small Business Safety Solutions For Utility Contractors

Not all small businesses are the same—IHSA knows that this is especially true for utility companies. That's why we have developed occupational health and safety solutions specifically for you and your workers.

Visit IHSA.ca/smallbusiness for free information about your legal rights and responsibilities as an employer or independent contractor. You'll find templates for creating your health and safety policies and programs, best practices, and required training.

Together we can keep you and your workers working safe for life.



Call us today or download your **FREE COPY** of IHSA's *Safety Talks* at 1-800-263-5024 or visit us at ihsa.ca/smallbusiness

IBEW Construction Council of Ontario

John Grimshaw, Executive Secretary Treasurer
James Barry, Executive Chairman
Lorne Newick, President
John Bourke, Vice President
Steven Martin, President, Power Council
Glen Drewes, Vice President, Power Council

**Representing 11 IBEW Local Unions
across the Province of Ontario
serving over 17,000 Electricians,
Communication Workers and Linemen**

**IBEW CONSTRUCTION
COUNCIL OF ONTARIO**
209-61 International Blvd.
Toronto ON M9W 6K4
Tel: 416-674-6940

530 SARNIA
Mick Cataford, B.M.
Frank Harris, Pres.
Tel: 519-344-4154

105 HAMILTON
Lorne Newick, B.M.
Stuart McLellan, Pres.
Tel: 905-387-1721

586 OTTAWA
John Bourke, B.M.
Bruce Parsons, Pres.
Tel: 613-741-5664

115 KINGSTON
Bill Pearce, B.M.
Jason Kish, Pres.
Tel: 613-547-4115

773 WINDSOR
Karl Lovett, B.M.
James Dodman, Pres.
Tel: 519-948-2221

120 LONDON
John Gibson, B.M.
Jim Dumaresq, Pres.
Tel: 519-652-2929

804 KITCHENER
George Couch, B.M.
Mark Watson, Pres.
Tel: 519-648-3993

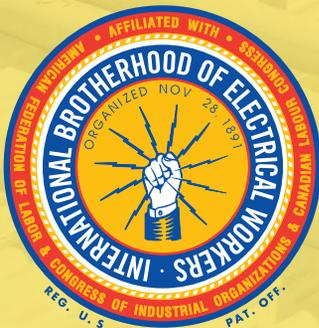
303 ST. CATHARINES
Mark Cherney, B.M.
Rob Wall, Pres.
Tel: 905-354-4303

1687 SUDBURY
Bruce Palmer, B.M.
Tel: 705-566-1687

353 TORONTO
Steven Martin, B.M.
Robert White, Pres.
Tel: 416-510-3530

INTERNATIONAL OFFICE
Bill Daniels, IVP
Tel: 905-564-5441

402 THUNDER BAY
Glen Drewes, B.M.
Gary McMahon, Pres.
Tel: 807-623-5759



The future has arrived.
Be ready to respond.

Discover the

Microelectric®

BP320
Series

320 A Self-contained meter socket

More and more systems powered by electricity are a part of our daily lives and our homes. 200 A service entrances are rapidly becoming overloaded. As electric vehicles become more mainstream, Canadian houses also need to have the infrastructure to accommodate charging stations.

Thomas & Betts is pleased to launch the Microelectric® **BP320** series meter socket: the first **320 A** self-contained meter socket designed and manufactured in Canada.

Developed to meet the increasing demand for larger service entrances, the BP320 series offers unparalleled safety features and requires no current transformer. It also meets the requirements of the 2015 Canadian Electrical Code.

The future has arrived. To learn more about this exciting new product, take a look at our video and brochure at www.tnb.ca. Or, simply scan the QR code below.



Microelectric®. Tomorrow's solutions. Today.

www.tnb.ca

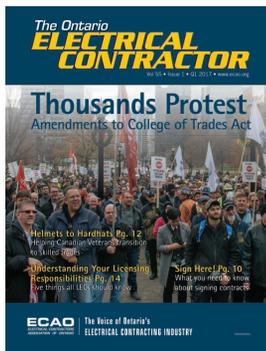
Thomas & Betts

A Member of the ABB Group

The Ontario **ELECTRICAL CONTRACTOR**

Vol 55 • Issue 1 • Q1 2017

Opinion: From the President	6
Thousands Protest	
Amendments to College of Trades Act	8
Sign Here!	
What you need to know about signing contracts	10
Helmets to Hardhats	
Innovative program is having success transitioning Canadian veterans to skilled trades	12
Understanding Your Licensing Responsibilities	14
Be in the Know	
WSIB's Re-Employment Obligation.....	16
Get Smart	
New smart helmets provide more than just virtual benefits to electrical industry	18
What to Consider Before Purchasing	
Business Insurance	20
Professional Services Directory	22



The Ontario Electrical Contractor is printed on 10% post-consumer FSC certified paper using soya based inks. When necessary to mail an issue in an enclosure, we use an environmentally-friendly, 100% oxo-degradable poly-wrap.



The Ontario Electrical Contractor is published quarterly for:

ECAO
ELECTRICAL CONTRACTORS
ASSOCIATION OF ONTARIO

10 Carlson Court, Suite 702
Toronto, Ontario M9W 6L2
Tel: (416) 675-3226
Fax: (416) 675-7736
(800) 387-ECAO (3226)
ecao@ecao.org
www.ecao.org

ECAO EXECUTIVE COMMITTEE

President: Dan Lancia,
Holaco Installations Limited, Hamilton

First Vice-President: Mark Lloyd,
T. Lloyd Electric Limited, Hamilton

Second Vice-President: Brad Walker,
Laframboise Group Ltd., Cornwall

ETBA Chair: Chris Cimek

Treasurer: Doug Dinniwell, Western
Mechanical Electrical Millwright Services Ltd.

Executive Director: Jeff Koller

The Ontario Electrical Contractor is the official publication of the Electrical Contractors Association of Ontario. Its purpose is to provide information and editorial comment on issues that are relevant to the electrical contracting industry.

Publisher

Robert Thompson

Senior Editor

Ali Mintenko-Crane

Sales Executives

Nolan Ackman,
April Krysowaty, Mike Manko,
Jack Smith, David Tetlock

Design Specialist

Kelli McCutcheon

Published by:

MediaEdge
mediaedgepublishing.com

33 South Station Street
North York, ON M9N 2B2
(866) 480-4717

Email: robertt@mediaedge.ca

531 Marion Street
Winnipeg, MB R2J 0J9
(866) 201-3096

Fax: (204) 480-4420

www.mediaedgepublishing.com

President

Kevin Brown

Senior Vice-President

Robert Thompson

Branch Manager

Nancie Privé

All rights reserved. The contents of this publication may not be reproduced by any means, in whole or in part, without the prior written consent of the association.

PUBLICATION MAIL AGREEMENT #40063602

Return Undeliverable Items to: Electrical Contractors Association of Ontario, 10 Carlson Court, Suite 702 Toronto, Ontario M9W 6L2



Opinion: From the President, Dan Lancia

Will the government ever get it?

Welcome to the new Kathleen Wynne era of cap-and-trade, where the price of gasoline was 5 cents more per litre on Jan. 2 than it was the day before, without any increase in the price of oil. The cost of a litre of diesel was predicted to rise more than 6 cents, and natural gas costs were expected to add between \$70 and \$80 per year per household, because natural gas providers are now required to buy greenhouse gas emission (GHG) allowances for the gas we use when heating our homes, cooking our food, and drying our clothes.

I can tell you from personal experience that my heating bill was 30-40 per cent more for the month of January than it was in December, with substantially reduced consumption. I wasn't even home the first two weeks in January.

The Liberal theory is that this new policy will help reduce carbon emissions and preserve the environment. The reality is that this is simply nothing more than a

new provincial tax on refineries or companies that emit carbon dioxide, which is being passed on to us as consumers.

In 2008 when the price of oil was nearly \$142 per barrel, we paid \$1.33 per litre at the pumps. In March 2011, the price per barrel of crude oil reached \$114.69. We paid as much as \$1.40 per litre at the gas pumps. This past December, the price per barrel of crude reached \$53.72, after falling as low as \$29.01 earlier in the year. We paid around a dollar per litre, sometimes less depending on the day. Now, the average price per litre is around \$1.10, with no appreciable increase in the cost of oil.

In 2015, the tax portion of the cost of a litre of gasoline was about 38 cents per litre, or about 35 per cent of the total cost. Now, with cap-and-trade in effect, it is climbing closer to 40 per cent. And when the federal Liberal government adopts similar cap-and-trade policies, we can expect even more pain.

When will our elected representatives in government realize that there is not an endless supply of tax dollars for them to arbitrarily confiscate and spend wastefully?

* * *

ECAO participated in meetings in early February with Public Services and Procurement Canada officials, met with a number of Senators, and appeared before the Senate's Banking, Trade and Commerce Committee to provide testimony and urge support for Bill S-224, federal prompt payment legislation. The Bill is currently making its way through the Senate. Following the committee hearings it is expected to be referred back to the Senate floor for third reading debate and passage. It would then go to the House of Commons for introduction and debate.



Reliable, friendly and knowledgeable

AS A PROUD ECAO ASSOCIATE MEMBER WE CAN SAVE YOU MONEY!

- 1-3 Employees - Flexibility and low cost options
- 4-250 Employees - Match current or design your own plan
- One contact - daily support, booklets, coverage, claims, invoicing

NO COST TO QUOTE - JUST CALL US
705-734-6279 or 1-800-661-9023

info@skipwith.ca

This Bill is unique from most federal legislation as it started in the Senate as a Private Members Bill introduced by Manitoba Senator Donald Plett. Most legislation gets debated and passed in the House of Commons before being referred to the Senate for consideration.

If passed, it would affect only construction procurement by the federal government, but it is happening concurrently with efforts in Ontario and other provinces to secure prompt payment legislation in the private and provincial public sectors.

Planning for our 2017 annual industry conference is proceeding well. For the first time all registration is being done online, right from our website www.ecao.org. This will mean no more misplaced registrations, or optional events or excursion sign-ups being overlooked or getting stuck in a fax machine. There is also an option to pay online at the time of registration. Aside from being held in beautiful Munich, Germany, with its rich culture and history, this year's conference will feature new speakers such as Daniel Linksey, who was the Chief of the Boston Police during the marathon bombings in 2013. If you are planning to join us please register soon.

Those individuals who registered by Feb. 14 were eligible for an upgrade to a suite at the historic Hotel Bayerischer Hof. We are pleased to announce that the winners of our early bird registration draw are: Carlo Maola ECA Sarnia, DMW Electrical Instrumentation Inc.; John Raeppe ECA Central Ontario, John Raeppe Electric Ltd.; and Bob O'Donnell, Greater Toronto ECA. Thank you to all who have already registered and encourage those who wish to attend to register no later than March 10. We expect that it will be a great conference and we hope you'll join us.

Other articles of note in this issue include an examination of the potential perils for our trade arising out of recent amendments to the *Ontario College of Trades and Apprenticeship Act*. Thousands of IBEW members, joined by ECAO contractors and other skilled trades, marched on Queen's Park on Nov. 30 to protest Schedule 17 of Bill 70, a large budget measures omnibus bill that these changes were buried in. The Bill was rushed through the Legislature in the space of a few weeks with little opportunity for debate and little regard for input from the compulsory skilled trades. Will passage of this legislation devalue the worth of becoming an electrician, of earning a Certificate of Qualification, of the College of Trades itself? Read and find out.

Also, Helmets to Hardhats came to Canada in 2014 and since then has helped nearly 600 military veterans transition into careers in the skilled trades. Our veterans have the discipline and dedication to make great tradespeople and deserve every opportunity that we as Canadians can give back to them. Isn't it time our federal government stepped up and did more for them?



**YOU HAVE
THE POWER
OF CHOICE**



TOROMONT CAT POWER SYSTEMS THE POWER TO BE PREPARED

- 24/7/365
- Generators 20kW-2000kW
- Load banks
- Transformers
- Distribution equipment
- Transfer switches
- Temperature control equipment

1600 DEALER OUTLETS

Delivers the power you need, when you need it, where you need it. Trust Toromont Rental Power to deliver the equipment, manpower, service and confidence you expect from Cat.

**24
HOUR**

**CALL US ON OUR
RENTAL HOTLINE**

1-866-667-5544

TOROMONT
Power Systems



powersystems@toromont.com
www.toromontpowersystems.com

Thousands Protest

By Jeff Koller

Amendments to College of Trades Act

On Nov. 30 nearly 4,000 skilled tradesmen and women gathered on the front lawn of Queen's Park to protest changes to the Ontario College of Trades and Apprenticeship Act, 2009 (OCTAA).

Protestors mostly consisted of members of the International Brotherhood of Electrical Workers (IBEW), but also ECAO member contractors, representation from the pipe trades, sheet metal, and other compulsory trades who fear that legislative changes to the Act will diminish the value of investing time and money into apprenticeship training, and consequently the value of obtaining a Certificate of Qualification in that trade.

The protest was one of the largest gatherings that Queen's Park had seen in years, and to the credit of organizers, it remained peaceful with a number of Progressive Conservative and NDP MPPs coming out to address the crowd. This was the first of at least five separate demonstrations which encompassed Liberal fundraisers and constituency offices across Ontario, with more planned.

One issue is the fact that these important changes were buried as one of 26 schedules addressing different topics inside a much larger

omnibus budget measures bill, the Building Ontario Up For Everyone Act (Bill 70), instead of being debated and voted on as a separate piece of legislation. Second, the entire bill was rushed through the legislature with very little opportunity for debate. It was introduced for first reading on Nov. 16 and passed third reading and proclaimed into law on Dec. 8.

This followed a year-long review of the College of Trades by Tony Dean, Ontario's former top civil servant, now newly appointed as a Senator in Ottawa. Dean's report was followed up with further consultations by Chris Bentley, former Attorney General for Ontario, to quantify the notion of "risk of harm."

In both reviews, which formed the basis of Schedule 17 of Bill 70, the outcomes would seem to favour the non-compulsory trades who are not required by law to be members of the College of Trades.

An area of deep concern in the Dean review was the notion of overlapping scopes of practice. Anyone can turn a screwdriver, but when you do it in proximity to high voltage electricity it can have dire consequences if done by someone who is not properly trained.

The media campaign and advertisements which accompanied the protests were not intended to be a slight against the many voluntary skilled trades that engage in extensive, multi-year apprenticeship training programs for their own people. Many voluntary trades invest a great deal of money and take great pride in the quality of their apprenticeship programs, and rightly so. What is of concern is the idea of someone unskilled and untrained becoming legally entitled to carry out potentially dangerous work that traditionally has been part of what being an electrician is all about.

A couple of years ago we heard about a utility that recruited through a temporary agency for a retrofit of streetlights with LED bulbs. The fear is that the legislative changes, derived from the recommendations of both Dean and Bentley, could lead to more instances like this happening, and, further, legitimize them.

The College now has responsibility for defining the vague notion of "risk of harm" and to do this it must establish a Compliance and Enforcement Policy, which will be drafted by a new Compliance and Enforcement Committee, which in turn will provide an annual identification of risks that will be the

Thousands of skilled trades workers gather on the front lawn of Queen's Park to voice their concern over Bill 70 and specifically Schedule 17.



focus for enforcement of a compulsory trade for the year. They have 180 days from when the legislation passed to deliver this policy to the Minister of Labour. So the countdown is now ticking toward June 6; D-Day.

Another area of great concern to our industry is the transfer of appeal authority from the Ontario Court of Justice to the Ontario Labour Relations Board (OLRB), which changes the whole legal structure of ticketing for offenses from the Provincial Offences Act (POA), like a speeding ticket, to an Administrative Monetary Penalty System (AMPS). Where the Provincial Offences Act sets parameters around the type of fine and the amount—with any revenue from successful prosecution going to the municipality in which the infraction occurred—the AMPS system could potentially have broader parameters on setting fines, and revenue from prosecutions will go to the provincial government.

The fear is that the OLRB will not be able to ignore its decades of experience (some might say inherent bias) administering the Labour Relations Act, which largely consists of settling jurisdictional disputes between unions, and consider the Ontario College of Trades and

Apprenticeship Act (OCTAA) as the only relevant legislation when it adjudicates appeals of contraventions under OCTAA.

In fact, Bill 70 gives the OLRB the authority to consider “any other factor it considers relevant,” which implies other legislation such as the Labour Relations Act and any precedents established by it over the past several decades.

The next several months will be telling, but what the electrical trade does not want – and it is a sentiment shared by other compulsory trades – is anything that will diminish the various scopes of practice of those trades, leading in turn to a dilution in the value of entering into a compulsory trade and earning a Certificate of Qualification.

After all, the College was established to regulate the skilled trades in Ontario with input and direction from those who know the trades best. After meeting its primary obligation of protecting the public interest, its next most important priority should be to protect the integrity of the trades that comprise its membership.

Nedco CA

ELECTRIFEST
XI

SAVE THE DATE

Monday
April 24
2017

Nedco's
#1
Electrical
Selling Show

electrifest.com



Sign Here!

What you need to know about signing contracts

By Dan Leduc,
Norton Rose Fulbright Canada LLP

One of the most asked questions I receive from subcontractors is whether or not they need a signed contract in order to have an enforceable contract. The easy answer (almost always) is no.

Oral contracts are valid and enforceable contracts in Ontario. The times you do need a written contract in Ontario are dictated by something called the Statute of Frauds which is a statute (imagine that) from which section 4 generally says that you cannot sue someone in respect of the sale of lands or the sale of any interest in or concerning lands unless the agreement is in writing. However, even there, there are some real estate contracts that can be made orally and be enforceable where there has been, for example, per performance. However, that is beyond the scope of this article. Further, your work is seldom performed pursuant to an oral agreement or arrangement.

If we take your process for obtaining work within the context of a tender, when you are asked to submit a tender, the law of tender in Canada says that the request of you to submit a tender is an offer. That offer is within the confines of what the Courts in Canada call “Contract A”. When you submit your bid, you are accepting that offer again within the confines of “Contract A”. With that offer and acceptance along with other key components typically required of most contracts, including certainty of terms, you have a contract. The law of tender certainly goes beyond the simple formation of the contract but generally maintains that where there are compliant tender submitted, for each compliant tender there would be a Contract A.

Conversely, the winning bidder would be offered Contract B, being the actual construction contract. There can typically only be one Contract B arising out of any particular bid.

Now, getting back to our focus: do you need to sign Contract B in order to have an enforceable contract? My take on the current

state of law is no, if the terms and conditions of Contract B were set out in Contract A, being the tender documents. If those terms and conditions were set out and disclosed to you as part of Contract A, and even if you qualified your bid, if there is some indication of an intention to award you the contract, then you would have an enforceable contract. The terms and conditions of the contract would be those set out in Contract A that relate to the actual construction of the project and potentially whatever qualifications you made in your bid submission. In fact, some construction contracts can be made partly in writing (through the tender documents), partly oral (any discussions about key terms for example and only to the extent that the written documents permit oral representations to ultimately form part of any contract), and partly by conduct (you mobilize to site and start work, as one example).

Given the foregoing, you should not feel legally compelled in each and every circumstance to actually believe that you will only have an enforceable contract by signing the document put to you after the intention to award the contract and project has been made. This issue becomes even more critical when the document put to you as Contract B has not been disclosed to you prior to your bid submission. In that circumstance, you may have a new offer being made to you considering that your tender price related to the terms and conditions disclosed to you in Contract A and there is a chance that you may not be legally obligated to sign Contract B considering that your bid submission was based on different terms and conditions.

Dan Leduc is a partner in the law firm Norton Rose Fulbright Canada LLP and practices almost exclusively in construction law. He is frequently called upon to advise and represent owners, engineers, subcontractors, suppliers and builders in such front-end services as contract review, tender issues and general construction matters, as well as in litigation and arbitration. Dan can be reached at 613-867-7171 or dan.leduc@nortonrosefulbright.com.

REGISTER TODAY!

Visit ecaomunich2017.ca to reserve your spot

ECAO ANNUAL INDUSTRY CONFERENCE
MUNICH, GERMANY
MAY 20-27, 2017

ECAO
ELECTRICAL CONTRACTORS
ASSOCIATION OF ONTARIO

KEYNOTE SPEAKERS

DANIEL LINSKEY

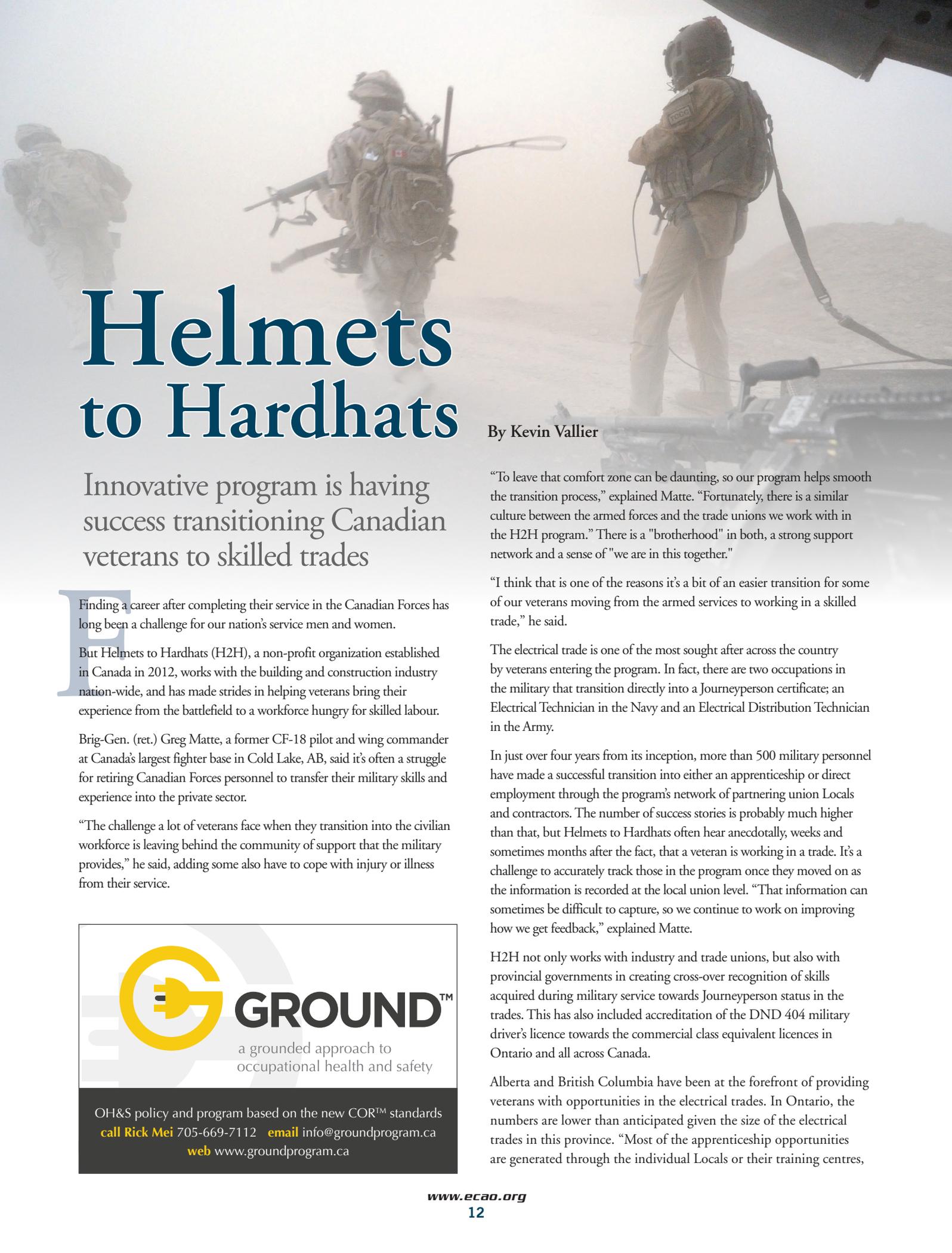
As the former Superintendent-in-Chief of the Boston Police Department and a 27-year veteran of the force, Daniel provided strong leadership during one of the most tragic and contentious events in the city's history – the Boston Marathon bombings. His emotional, inspiring and highly engaging talk is one you don't want to miss.



NIC BITTLE

Nic Bittle is the founder of Work Force Pro and works with contractors that want to prepare and develop their workforce to lead with impact, act like a pro, and perform at their best on a daily basis.

Nic's keynote talk, The Six Million Dollar Foreman – How Smart Contractors Identify, Train and Promote their Top Talent – is engaging and not to be missed if you want to identify and develop your company's future leaders.



Helmets to Hardhats

By Kevin Vallier

Innovative program is having success transitioning Canadian veterans to skilled trades

Finding a career after completing their service in the Canadian Forces has long been a challenge for our nation's service men and women.

But Helmets to Hardhats (H2H), a non-profit organization established in Canada in 2012, works with the building and construction industry nation-wide, and has made strides in helping veterans bring their experience from the battlefield to a workforce hungry for skilled labour.

Brig-Gen. (ret.) Greg Matte, a former CF-18 pilot and wing commander at Canada's largest fighter base in Cold Lake, AB, said it's often a struggle for retiring Canadian Forces personnel to transfer their military skills and experience into the private sector.

"The challenge a lot of veterans face when they transition into the civilian workforce is leaving behind the community of support that the military provides," he said, adding some also have to cope with injury or illness from their service.

"To leave that comfort zone can be daunting, so our program helps smooth the transition process," explained Matte. "Fortunately, there is a similar culture between the armed forces and the trade unions we work with in the H2H program." There is a "brotherhood" in both, a strong support network and a sense of "we are in this together."

"I think that is one of the reasons it's a bit of an easier transition for some of our veterans moving from the armed services to working in a skilled trade," he said.

The electrical trade is one of the most sought after across the country by veterans entering the program. In fact, there are two occupations in the military that transition directly into a Journeyman certificate; an Electrical Technician in the Navy and an Electrical Distribution Technician in the Army.

In just over four years from its inception, more than 500 military personnel have made a successful transition into either an apprenticeship or direct employment through the program's network of partnering union Locals and contractors. The number of success stories is probably much higher than that, but Helmets to Hardhats often hear anecdotally, weeks and sometimes months after the fact, that a veteran is working in a trade. It's a challenge to accurately track those in the program once they moved on as the information is recorded at the local union level. "That information can sometimes be difficult to capture, so we continue to work on improving how we get feedback," explained Matte.

H2H not only works with industry and trade unions, but also with provincial governments in creating cross-over recognition of skills acquired during military service towards Journeyman status in the trades. This has also included accreditation of the DND 404 military driver's licence towards the commercial class equivalent licences in Ontario and all across Canada.

Alberta and British Columbia have been at the forefront of providing veterans with opportunities in the electrical trades. In Ontario, the numbers are lower than anticipated given the size of the electrical trades in this province. "Most of the apprenticeship opportunities are generated through the individual Locals or their training centres,



OH&S policy and program based on the new COR™ standards
call Rick Mei 705-669-7112 email info@groundprogram.ca
web www.groundprogram.ca



Helmets to Hardhats helps members of the Canadian military transition the skills they learned while serving our country into skilled trades in civilian life.



so we are always seeking ways to develop those relationships further, particularly with the IBEW,” said Matte.

Soldiers by their nature, more often than not, make excellent tradespeople, with a mix of both skills and traits learned while serving in the military. “Feedback has been very positive. I think a lot of it has to do with the fact that veterans have acquired characteristics through their training and missions that are valued by employers such as a solid work ethic, discipline, teamwork, and they are also particularly adapt at learning new skills,” Matte explains.

There has been a steady stream of veterans going through the program since it began nearly five years ago. On average, 4,000 to 6,000 people leave the armed forces in Canada on an annual basis. If the economy is good and there are plenty of jobs, that number can edge upwards. The program also helps military reservists who may be seeking a job to complement their reserve careers in the trades, with reserve units all across Ontario. It’s important to note that H2H also partners with Career Edge, which provides employers with a subsidy for up to the first year of employment to enable Reservists to get established in a civilian career, such as through an apprenticeship in the trades.

Matte has been involved with Helmets to Hardhats since its inception. Growing up in a military family, his father was a veteran, and being a veteran himself, he found the opportunity to work with the organization very appealing.

When asked what he loves about his job the most, Matte simply replied, “Every single time we get word that someone in the program has been accepted into an apprenticeship or the workplace, it makes it all worthwhile!”

Helmets to Hardhats provides a tremendous opportunity for electrical contractors in Ontario to take advantage of a very talented pool of workers. For more information on the program visit www.helmetstohardhats.ca or email info@helmetstohardhats.ca

mgbtransformers

Used/refurbished power equipment specialists

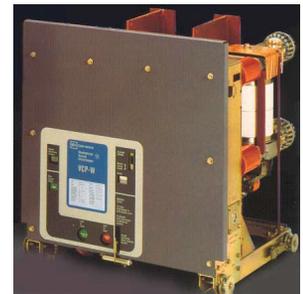
Transformers (in stock 100 KVA to 60 MVA)

- Liquid filled & dry type
- Rewind & repair shop / Emergency rentals

Switchgear

- load break switches (5, 15, 25, 35kV)
- 600V air circuit breakers (all makes & models)
- circuit breakers 5kV to 230 kV
- medium voltage starters (all makes)
- parts: Ct's, Pt's, fuses, relays

We sell, rent & repair / We buy your surplus



1-800-265-5608 / (450) 772-5608 / St.Pie, QC
www.mgbtransformers.com

UNDERSTANDING

Your Licensing Responsibilities

By the Electrical Safety Authority



In late fall 2016 more than 600 Licensed Electrical Contractors (LECs) and Designated Master Electricians (DMEs) attended the annual Electrical Contractor Registration Agency and Electrical Safety Authority (ECRA/ESA) licence holder meetings held in Kitchener and Richmond Hill. The theme of the meetings focused on the roles and responsibilities of LECs and DMEs.

The Regulation can be complex; ECRA/ESA understands this and has created two resources to help provide clarity to licensees about their licensing obligations: the *Guideline to the Duties and Responsibilities of Licensed Electrical Contractors and Designated Master Electricians* as well as the *Standards of Conduct*.

Five Things All LECs Need to Know

1. All Electrical work must be carried out in accordance with all applicable laws, including the Ontario Electrical Safety Code. You are responsible to ensure electrical work is performed correctly and to take out the necessary permit.

2. At least one Master Electrician must be designated at all times to oversee the electrical work carried out on behalf of the business. The LEC is responsible to determine the appropriate number of DMEs the business requires. An LEC is required to employ a Designated Master Electrician directly; the DME cannot be a subcontractor.
3. The underground economy applies to everything done outside of the requirements of your ECRA/ESA licence, including electrical work performed without the required permits.
4. You are required to provide the public with a standard level of qualification, expertise and professionalism in the industry. This means ensuring you have employed individuals with the appropriate designations to oversee the planning, supervisory and safety-related responsibilities.
5. If you hire sub-contractors you must ensure they have an electrical contractor's licence, if required by the regulation.

Top Five Requirements for Designated Master Electricians

1. A DME must be actively employed by the LEC they are designated to. This means being on the payroll of the LEC.
2. The DME has accountability for ensuring that safe work practices are adhered to. For example, ensuring the proper training and use of personal protective equipment for employees working with electrical equipment.
3. A DME is required to be involved in the personal planning of electrical work carried out on behalf of the LEC. For example, providing guidance and mentoring of electrical workers to enhance their skills and judgment in performing high quality and safe electrical work.
4. A DME has the obligation to oversee electrical work being performed on behalf of the LEC. One example is monitoring the execution of activities to ensure work is being carried out in a manner such that workers and consumers are protected and safe from harm.
5. Master Electricians cannot advertise or perform electrical contracting services without an Electrical Contractor's licence. Master Electricians are prohibited from carrying out electrical work unless he or she also holds a valid electrical trade certificate of qualification as required under the *Ontario College of Trades and Apprenticeship Act, 2009*.

These are just some of the obligations outlined for LECs and DMEs. All licensees were also provided with copies of the documents in the summer issue of Plugged In newsletter. Or, to download copies of the *Guideline to the Duties and Responsibilities of Licensed Electrical Contractors and Designated Master Electricians* as well as the *Standards of Conduct*, visit esasafe.com.

To view a full list of responsibilities for LECs and DMEs visit www.esasafe.com/licensing/licensing-info/regulation

You Can Come To Us. Or We Can Come To You.

At Peel Scrap you can take advantage of our industrial container service, call for pickup or bring your scrap to either of our convenient locations.

At Peel, you'll always get the competitive pricing, knowledge and service that has made us one of the GTA's best.

MATERIALS WE ACCEPT INCLUDE:

Insulated Wire • Copper • Aluminum • Stainless Steel • Transformers • Cast Iron • Electric Motors Ballasts • Steel • Brass • End-Of-Life Electronics

DOWNLOAD OUR FREE MOBILE APP

Available for Apple mobile devices at the iTunes App Store.

Available for Android mobile devices at the Google App Store.

(Search Peel Scrap Metal Recycling)

PEEL
SCRAP METAL RECYCLING LTD



NEW LIFE FOR OLD METALS

905-612-1288

MISSISSAUGA: 2301 Anson Drive,
(West Off Torbram, North Of Derry)

905-825-1288

OAKVILLE: 1150 South Service Rd. W.
(Between 4th Line & 3rd Line)

www.peelscrapmetalrecycling.com

LOW PROFILE...INSTALLS IN THE WALL, SO LESS SHOWS OUTSIDE

RECESSED IN BOX™

WEATHERPROOF IN USE COVER • FOR EXTERIOR NEW OR OLD WORK

for New & Existing Vinyl Siding

DBVS1GC

IN BOX meets 2015 CEC (Rule 26-702), NEMA 3R, NEC 406.8 (b) Where a weatherproof in use cover is required for 15 or 20 amp receptacles installed outdoors.

With IN BOX™ there are no extra parts to purchase or handle, so you save big on labor and materials.

For exterior use, one-piece, recessed IN BOX electrical box eliminates installing multiple pieces (electrical box, bubble cover assembly; siding block on siding.)

IN BOX installs in the wall so less shows outside

- Non-metallic, 22.0 cu. inch electrical box with weatherproof in use clear or white cover
- Accepts single-gang devices, no gaskets required
- Canada orders ship with grounding lug

Installs in the wall



Less shows outside!

for Textured Surfaces

for New Brick in brown, white



DBVM1GC



DHB1WGC

Also for Retrofit Flat Surfaces, Foam Wall Systems all in one and two-gang styles



Patented. Other patents pending

©2006 Arlington Industries, Inc.

Arlington 800/233-4717 • www.aifittings.com

CSA LISTED

BOX EXTENDERS

NEW! Larger Perforated Flange

EXTEND SET BACK ELECTRICAL BOXES UP TO 1-1/2 INCHES

Same Cost as our 'Regular' Box Extenders



BE2X Two-gang w/ large perforated flange



BE2X



BE1X Single gang

Larger flanges cover miscut openings

Our non-conductive plastic UL/CSA Listed Box Extenders extend set back metal or non-metallic electrical boxes up to 1-1/2". They level and support a wiring device. There's no need to tape the sides of a receptacle to prevent arcing in a metal box.

NEW! TWO-GANG style with larger flange to cover miscut openings. Perfect for both midi and max plates – the flange is trimmable for use with standard cover plates.

Both 'larger flange' versions cost the same as our 'regular' BE1 and two-gang BE2

so if you normally use a midi plate these are the box extenders for you!



BE2

BE2X

- Complies w/ NEC (314.20) for set back boxes
- 2-hour fire rating
- Offered in a variety of styles, including round



Trimmmable to fit standard wall plates



Arlington 800/233-4717 • www.aifittings.com



© 2016 Arlington Industries, Inc. Patented/Other patents pending

Be in the Know

WSIB's Re-Employment Obligation

By Julie Kennedy, President of Legal Services, QuikCare Paralegal Professional Corporation (QPPC)

WWe are all aware of the importance of offering modified duties and we are all familiar with the term “duty to accommodate,” but are we all aware of exactly how far that duty extends?

The WSIB has created a policy outlining an employer's responsibility to re-employ workers after they have suffered an injury; the Re-Employment Obligation Policy. Essentially, the Re-employment Obligation is to protect workers against being terminated, laid off, or not provided with modified duties immediately after an injury or in the early stages of recovery.

The Re-Employment Obligation is especially challenging for construction employers given the general nature of the industry along with looming lay-offs and union collective agreements. Construction employers have an immediate obligation to re-employ injured workers who have been unable to work due to a work related injury/disease.

The WSIB Policy 19-05-02, Re-employment Obligation in the Construction Industry - Threshold, Duration and Specific Employer Requirements defines the term “unable to work” as follows:

- Is absent from work
- Works less than regular hours, and/or
- Requires accommodated/modified work that pays, or normally pays, less than his or her regular pay

Remember, while an employer is able to advance wages to an injured worker who is unable to work it does not eliminate the fact that the worker was unable to work.

When does your obligation to re-employ begin?

The obligation to re-employ begins when an employer is notified that an injured construction worker is medically able to perform:

- The essential duties of his or her pre-injury job
- Suitable construction work, or
- Suitable non-construction work



When does your obligation to re-employ end?

The employer is obligated to re-employ until the earliest of:

- The second anniversary of the date of injury
- One year after the worker is medically able to perform the essential duties of his or her pre-injury employment
- The date on which the worker declines an offer from the employer to re-employ the worker, or
- The date on which the worker reaches 65 years of age

What's the big deal?

Failure to re-employ an injured worker can result in a fine of up to a full year worth of the worker's salary in addition to the loss of earning benefits and ongoing health care benefits the worker may be entitled to.

While there may not be a Re-Employment Obligation for some workers, it is important to accommodate an injured worker to avoid any potential loss of earning benefits or the possibility of having the worker retrained by the WSIB for another job in a different industry. The only way to fully prevent against this is to have the workers accommodated with modified duties (or until they return to regular duties) and the duration of the re-employment obligation is met.

The WSIB policies clearly state that an employer has an obligation and duty to accommodate an injured worker until undue hardship. By not accommodating an injured worker it puts employers at great risk for extremely high claims costs which will directly impact the CAD-7, as well as open the door for possible Work Transition programs which can be extremely costly.

Already in breach? Here's what you can do now.

The most effective way to come into compliance and reduce the costs associated with the breach is to re-hire an injured worker immediately. The WSIB will allow a grace period after the decision is made – but it does not last long! While re-hiring a worker may reduce or remove the penalty associated with the breach, it does not remove the loss of earnings a worker may be entitled to from the date of lay off to the date of rehire.

CASE STUDY 1

John Snow reported an onset of pain in his right shoulder following a specific work event; he sought medical attention immediately and required some time off work as suitable modified duties were not available. As a result, his claim was approved by WSIB for Health Care and Loss of Earnings (LOE).

- Date of Injury: August 1, 2016
- Lost time period: August 2, 2016 - August 15, 2016.
- Date returned to regular duties: September 1, 2016

CASE STUDY 2

John Snow was laid off on October 1, 2016 due to a shortage of work. The company was unable to present substantial information to WSIB to justify the “shortage of work argument” and was thus penalized with a fine for not fulfilling their re-employment obligation. The re-employment obligation in this scenario starts from the day John was cleared for regular duties (September

1, 2016) and the fine is calculated seven business days after the breach decision is made. The breach decision was made on October 24, 2016.

- Date re-employment obligation ends: September 1, 2017
- Penalty calculated from: November 1, 2016 – September 1, 2017 (43 weeks)
- Worker's Net Average Earnings (NAE): \$1,200 x 43 weeks = \$51,600
- Worker's LOE entitlement: \$51,600 (applied to CAD-7)
- TOTAL COST: \$103,200.00

As a rule, the cost of breaching the re-employment obligation is double the cost of outstanding employee wages.

Fortunately, WSIB will not levy a fine until the employer is notified that they are in breach of their obligation. Further, the fine will be reduced if the employee is brought back to work prior to the end of the re-employment period or removed if the employer decides to come into compliance with the policy by bringing the employee immediately back to work before the penalty is issued.

YOUR CHOICE BETWEEN

Open-End Lease Closed-End Lease

<p>No KM Charges</p>	<p>Walk-Away</p>
<p>After Market Accessories</p>	<p>Low Risk</p>
<p>True Lifecycle Costs</p>	<p>Ease of Management</p>

Jim Pattison Lease
 Canada's Leader in Customized Fleet Management
 Find out more: www.jimpattisonlease.com

Get Smart

New smart helmets provide more than just virtual benefits to electrical industry

By Jim Peters

Looking more like the headgear you'd find in the movie *TRON Legacy*, "smart helmets" are quickly finding their way onto building construction sites around the world. Also performing double duty as hard-hats, the helmets are often equipped with Building Information Modeling (BIM), which allows users to truly experience augmented reality (AR).

Designed for any type of building site, users simply don the helmet, "have a look around" and the helmet's visor does the rest—providing a plethora of job-specific information in the surrounding spatial environment. Using a combination of cameras, sensors and software, smart helmets superimpose images over the real world, altering the image base depending on where one looks.

A boon to many kinds of construction disciplines, electrical contractors will find the technology extremely useful. The industry will undoubtedly learn the benefits of smart helmets for the multiple kinds of wiring tasks that take place in every building project—no matter the size. Just being able to see what's unseen means electricians no longer have to wait for, or interpret blueprints and construction drawings.

BIM involves representing a design as a combination of "objects" that can be vague or undefined, generic or product-specific, either solid shapes or void-space (like the shape of a room), that carry geometry, relations and attributes. The software's design tools allow extraction of different views from a building model for drawing production and other uses. BIM ensures that every object is defined automatically as it relates to other objects in the overall construction plan, so that if one object

is amended, dependent ones will automatically also change. Each model element can carry attributes for selecting and ordering them automatically, providing cost estimates as well as material tracking and ordering.

A couple of the principal players in the smart helmet biz are Autodesk, a multinational American technology company that makes engineering and architectural software, and DAQRI—a firm that specializes in augmented reality helmets, glasses and other tools. BIM360 is Autodesk's flagship AR product and the DAQRI helmet is just one of the company's bragging rights.

"Augmented reality provides users with visually rich information overlaid in their real world environment. From industrial workers to automotive drivers, this hands-free technology improves productivity and greater efficiency in completing tasks and managing workflows. More than just an AR device, DAQRI Smart Helmet is a true wearable Human Machine Interface (HMI) that was designed specifically for Field Service Workers and the actual working conditions and environments they currently encounter," says Rajat Gupta, Senior Director of Sales – North America at DAQRI.

As is beginning to be reported at construction sites all over the world, instead of the only visible elements being walls, floors and ceilings,



you can now walk the job site, look up and see the future. In the electrical trade, workers can isolate and highlight all of the wiring and cables planned for a specific location, just by looking at it, then choose another menu option to see how it will react with other infrastructure components, such as ductwork.

By leveraging AR to review infrastructure previously only available on a computer monitor or tablet, it could reduce many of the headaches and extra work associated with fitting several systems into the same space. With the helmet on, you can now also visualize many of the potential collisions that are above ceilings, and situations that fall within the walls.



New “smart helmets” using Building Information Modeling (BIM) technology are making their way into the electrical trade.

“By bringing BIM to AR an electrician out in the field can access information and see real time changes, progress, inspections, etc. In addition, it will affect visual design for MEP (mechanical, electrical, plumbing). BIM and DAQRI Smart Helmet provide visualization of ducts, pipes, and electrical right on top of the skeleton structures. It will help with QA/QC for Issues - Quality Assurance and Quality Control - both positioning and orientation reference become very easy when you can compare the real build progress and a perfectly aligned digital representation,” says Gupta.

Futurama

In a world where so many contemporary technological achievements come equipped with negative side-effects (such as constantly checking your smart phone), smart helmets clearly demonstrate many of the obvious benefits. And not only for the inherent efficiencies on the job site, but for the very real safety benefits as well. AR devices help workers free their hands, making typical working environments safer because all of the infrastructure information and instructions can be displayed on the visor. And that's just safer and less risky.

As DAQRI CEO Brian Mullins suggests on the company website, "We've become so limited by this idea of technology replacing workers when the better idea is to power-up their senses and extend what they're capable of doing."

DAQRI Smart Helmet

Fast facts

- Weight:** No more than a standard safety helmet.
- Features:** Anti-reflective, scratch-resistant safety visor.
- Camera:** 13 megapixel high-definition, 2D target recognition and tracking as well as object/colour recognition and a 4D HUD (transparent augmented reality display tweaked for use in the industrial environment).
- Power:** Sixth-generation Intel Core m7 processor and Intel RealSense technology to enhance depth sensing ability.

According to DAQRI, these are just some of the ways to use their Smart Helmet

- Training and Simulation - to provide contextual assistance and cues for new employees or workers who perform complex tasks infrequently and need to refresh and have reassurance that they're performing each action correctly.
- Situational Awareness - Whether through visualization of a project, progress update or live connection with experts and managers, our helmet makes the worker a more integrated and connected part of the worksite.
- Compliance - allows the worker to capture photos, videos, and other data, which can prove that sensitive materials were disposed of as required by company, industry, or regulatory requirements.
- Other capabilities include Augmented Work Instructions, Remote Expert, Data Visualization, Inspection, Assembly, Maintenance, Storage and Retrieval, Training and Education, Reorder and Inventory Management, and Prototyping.

MERSEN
SURGE-TRAP[®]
UL/CSA TYPE 1
SPD LINE



EP.MERSEN.COM

MERSEN
Expertise, our source of energy

What to Consider Before Purchasing Business Insurance

By Richard Frost, Federated Insurance Company of Canada

Purchasing insurance for your business is a significant investment. As with any investment, you want to make sure you're getting the most value for your dollar. Before the purchase coverage, a great amount of time, effort and research should be invested to ensure you obtain the best coverage to meet your business' needs. Below are some tips to consider and some questions you'll want to ask before you insure your business.

Understand your risks

No one knows your business better than you. Ask yourself: What are your needs and who can best fulfill them? What makes up your operations? Where do your jobs take place? How long is the duration

of the project you're working on? What are the common risks in your industry? There are multiple companies out there offering a variety of coverages. Each answer could affect the amount of insurance you will need.

Shop around

There are many factors that affect your insurance premium. Your own loss experience and industry losses are just two considerations. When shopping for insurance, shop smart by asking yourself what your needs are and doing your research. There are multiple insurance companies offering a variety of coverages. It is important to compare apples to apples when determining what to do. Look at what the policy covers in detail including exclusions, endorsements, limits and deductibles to see which ones best fit your business' needs. Above all, ask yourself which one allows you to sleep peacefully at night knowing that your business and assets are protected.

Review your policy limits

As your needs evolve, so will the needs of your business. That's why it's important to review your policy regularly and see if your coverages still meet your needs. Insurance companies offer a wide range of coverage limits. Ask yourself: What limits do your contracts require? How much is enough? Keep in mind that if your actions cause injuries or loss of life, large claims could occur so you'll want to be insured to cover those costs. Consider bundling several policies with one insurance carrier. Layering and umbrella insurance are some ways to get the most from your coverage while controlling your costs. Deductibles are also important to consider since they can affect your premium and may allow you to purchase more insurance where it is necessary.

Once you have a good understanding of your needs, here are some questions to ask your insurance specialist:

1. What is the expertise of the insurer in your industry?
2. What is the financial rating of the insurer? Have there been any recent changes?
3. Does the insurer have access to all the types of insurance that your company requires?
4. What are the limits on coverages?



SUPERSEAL
LIQUID TIGHT CONDUIT

- Strength and flexibility to handle stress and strain
- Designed for dry, damp or wet locations
- Temperature: -30° to +75° C
- Bi-directional

 **CONDUITS FLEXIBLES**
SUPERIOR
FLEXIBLE CONDUITS

FOR MORE INFO: TEL: 1.800.561.4216
FAX: 1.800.230.9573
sales@superiorflex.com
www.superiorflex.com

Quote Promo Code **EC0716** for a 5% discount on orders over \$1,000.

5. What are the exclusions and endorsements?
6. What payment options are available?
7. How will service issues be managed and escalated?
8. How will the renewal process be handled?
9. Who do I contact if I require Certificates of Insurance for multiple projects? Are there any restrictions on the number of certificates that I can request? What is the cost, and how long does it take to get one?
10. What's your claims process?

Here are some insurance terms that you should understand when researching your insurance needs and coverage:

Definitions:

- Insurance: is the sharing of loss by the few individuals within a group, amongst the many members of that group.
- Insurance policy: is a contract between the insurer and the insured, which determines the claims which the insurer is legally required to pay in exchange for payment.
- Declarations page: provides the name of the insured, policy period, coverage, limits, deductibles, and premium.
- Policy wordings: tell you what is covered and what is excluded.
- Endorsements: can add or deny coverage, add or delete conditions, change payment limits, and add additional named insureds.

- Co-insurance clause: requires the insured to have an equal or greater amount of the stated coinsurance percentage of the insurable value of the covered property.
- Umbrella insurance: is excess coverage over and above the general liability and automobile policies.
- Deductible: is the portion of the loss that the insured pays. There are a variety of amounts and can have a significant effect on the cost of the coverage.
- Certificate of insurance: is a document issued by an insurance company to provide evidence that an insurance policy is in force. You can request this of subcontractors to ensure they have insurance and they can be requested from you to prove that you have insurance.

© Federated Insurance Company of Canada. All rights reserved.

This document is provided by Federated Insurance Company of Canada ("Federated") for informational purposes only to augment your own internal safety, compliance and risk management practices, and is not intended as a substitute for assessment or other professional advice. Federated makes no representations or warranties regarding the accuracy or completeness of the information contained in this document. Federated shall not be responsible for any loss arising out of reliance on the information.

Richard Frost, CIP, CRM, is Federated Insurance's Loss Prevention Consultant for National Accounts and Associations.

Intertek is pleased to offer field labelling and inspection for both electrical equipment to SPE-1000 as well as for medical electrical equipment to SPE-3000. The ETL mark on our special inspection label tells inspectors, or AHJ's, that the product complies with nationally accepted standards and includes a unique serial number that is recorded in your report.



Field Labelling of Electrical Equipment & Medical Electrical Equipment



To schedule a special inspection in Ontario please call 905-678-7820, email sarah.martin@intertek.com or visit www.intertek.com/inspections

The Ontario **ELECTRICAL CONTRACTOR**

Vol 55 • Issue 1
Q1 2017 • www.ecao.org

PROFESSIONAL SERVICES DIRECTORY

Arlington Industries15
www.aifittings.com

Federated Insurance Inside Back Cover
www.federated.ca

IBEW Construction Council of Ontario3
www.ibewcco.org

**Infrastructure Health
& Safety Association** Inside Front Cover
www.ihsa.ca

Intertek21
www.intertek.com

Jim Pattison Lease17 & Digital
www.jimpattisonlease.com

Mersen19
www.ep-ca.mersen.com

mgbelectric.....13
www.mgbelectrique.com

Nedco9
www.nedco.ca

Occupational Health & Safety12
www.groundprogram.ca

**Peel Scrap Metal
Recycling Ltd.**14
www.peelscrapmetal.com

**Skipwith & Associates
Insurance Agency Inc.**.....6
www.skipwith.ca

**Stanley Black
& Decker** Outside Back Cover
www.stanleyblackanddecker.com

**Superior Flexible
Conduits**.....20
www.superiorflex.com

Thomas & Betts4
www.tnb.ca

Toromont Cat Power Systems7
www.toromontpowersystems.com

Yow Canada Inc.22
www.yowcanada.com



**YOW Canada offers
Working at Heights
in Ontario Training**

**The deadline
is April 1st.
Are you ready?**

**Visit our website
and book your
training today!**

www.yowcanada.com/WAH
1.866.688.2845
info@yowcanada.com

YOW
Canada
Inc.
Safety Compliance Made Easy!



Recommended insurer of the ECAO

The risks you face as an Electrical Contractor are unique.

Federated Insurance can design specialized and comprehensive programs specific to the needs of you and your business.



Call **1.844.628.6800** and speak to a
Commercial Insurance Specialist today.

www.federated.ca



Knowing
your business
matters.

POWER OF CORDED FREEDOM OF CORDLESS™

DEWALT FLEXVOLT™



DCD460

UP TO
138 HOLES

2-9/16" IN 2x10 SPF
using DCB606 battery ON A SINGLE CHARGE



WORLD'S FIRST BATTERY PACK THAT AUTOMATICALLY CHANGES VOLTAGE WHEN YOU CHANGE TOOLS.

The FLEXVOLT™ battery's ability to automatically change between two voltages gives users a serious advantage when it comes to efficiency. It's the battery that not only powers, but improves the runtime** of our DEWALT® 20V MAX* tools, so you don't have to invest in a whole new system. It's the battery that brings the power of corded to a new lineup of 60V MAX* and 120V MAX* DEWALT® tools so you can finally work on a fully cordless jobsite. Built Guaranteed Tough®, Built by DEWALT®.

20V MAX*
LITHIUM ION

COMPATIBLE
Compatible with
all our 20V MAX* tools

60V MAX*
LITHIUM ION

EXPANDABLE
Brings power to a whole
new lineup of tools

120V MAX*
LITHIUM ION

POWERFUL
Combine two 60V MAX* batteries
for revolutionary cordless freedom

GUARANTEED TOUGH.®

www.DEWALT.ca

Copyright ©2016 DEWALT. The following are examples of trademarks for one or more DEWALT power tools and accessories: The yellow and black color scheme; the "D"-shaped air intake grill; the array of pyramids on the handgrip; the kit box configuration; and the array of lozenge-shaped humps on the surface of the tool. *Maximum initial battery voltage (measured without a workload) is 20, 60 and 120 volts. Nominal voltage is 18, 54 and 108. 120V MAX is based on using 2 DEWALT 60V MAX* lithium-ion batteries combined. **With FLEXVOLT™ battery when used with DEWALT 20V MAX* tools.