News, Views and Updates from the Electrical Safety Authority

PLUGGED IN

FALL 2022

TOP 10 DEFECTS

Learn the Top 10 Defects and how to avoid them.

Electrical Safety Authority

Convictions

UNLICENSED

Najibullah Esmatullah

Advertised electrical services on Kijiji while not licensed

- $500.00 fine, $110.00 victim surcharge – Advertising

Riaz Alam

Advertised electrical services on Kijiji while not licensed

- $2,000.00 fine, $500.00 victim surcharge – Advertising

Ottawa Renovation & Construction Corporation

Renovations at residences – 3 sites

- $3,000.00 fine, plus $750.00 victim surcharge – No EC license
- $3,000.00 fine, plus $750.00 victim surcharge – No LEC license

PFT Construction Inc.

False Certificate of Inspection, 1 site

- $8,000.00 fine, plus $2,000.00 victim surcharge – No EC license

Marco Masciale

Renovations at residence, 1 site

- $4,000.00 fine, plus $1,000.00 victim surcharge – No EC license

2557950 Ontario Corporation

Renovations at residence, 1 site

- $3,000.00 fine, plus $750.00 victim surcharge – No EC license
- $3,000.00 fine, plus $750.00 victim surcharge – Leave Hazards
- $1,500.00, plus $375.00 victim surcharge – Failure to Apply for Permit

Anpalagan Balakrishnapillai

Advertised electrical services on Kijiji while not licensed

- $500.00 fine, $110.00 victim surcharge – Advertising

Shane MacDonald

Advertised electrical services on Kijiji while not licensed

- $500.00 fine, $110.00 victim surcharge – Advertising

Convictions (Continued)

Kirk Hargreaves

Renovations at residence – 1 site

- $10,000.00 fine, $2,500.00 victim surcharge – No LEC
- $10,000.00 fine, $2,2500.00 victim surcharge – Failure to Apply for Permit
- Note: This case is under appeal from the Defence.

Peter Egredzija

Renovations at residences - 2 sites – Repeat Offender

- $5,000.00 fine, $1,250.00 victim surcharges – Offering to Perform Electrical Work

Nas Rahmatullah

Advertised electrical services on Kijiji while not licensed

- $500.00 fine, $110.00 victim surcharge – Advertising

Electrical Equipment Approval Requirements

The dynamics of the retail environment has changed dramatically in the last decade. The internet has changed how consumers shop and businesses advertise and sell their goods and services.

Recently, ESA became aware that licensed electrical contractors (LECs) are purchasing panelboards from an online retailer that are not certified to Canadian Safety Standards. Installing uncertified panelboards breaches the Ontario Electrical Safety Code (OESC) and O. Reg. 438/07 but could also result in a potential safety hazard. In addition, requirements for combination service entrance panelboards in Canada are different from the US requirements.

Ontario and Canadian approval requirements

One of the four Regulations the Electrical Safety Authority (ESA) oversees is the Product Safety Regulation 438/07 which requires approval of all electrical products, including consumer, commercial and industrial products. Additionally, OESC Rule 2-024 references O. Reg. 438/07 and Rule 2-022 states that *"No person shall use, advertise, display, sell, offer for sale or for other disposal any electrical equipment unless it has been approved"*

In Canada, all electrical equipment offered for sale and use are required to be approved in accordance with Rule 2-024 of the Canadian Electrical Code (CE Code). Almost all provincial Authorities Having Jurisdiction have similar requirements that prohibits the sale, display, installation or use of electrical equipment that has not been approved by the recognized certification body or field evaluation agency to the applicable product safety standards. The approved electrical products shall bear one of the recognized marks, such as CSA, cUL, cETL, etc. The complete list of recognized marks in Ontario is published on the ESA website, https://esasafe.com/electrical-products/recognized-certification-marks/

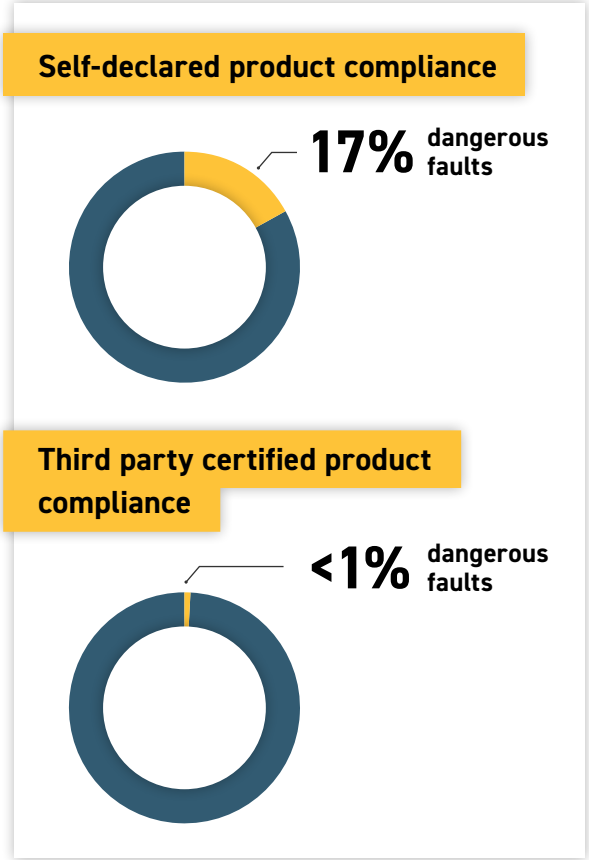
It is important to note that the Canadian safety standards are aligned with the Canadian Electrical Code to ensure products are dovetailed with the installation requirements. For the recent issue with the service Panelboard, the bonding and grounding requirements in Canada are different from the US, which results in a safety hazard when the panleboards are not built and certified to the Canadian standards.

Electrical Equipment Approval Requirements (Continued)

"Third-party" approval requirements

In North America, electrical products are required to be approved by an independent "third-party", which means, in Canada, a certification body or field evaluation agency accredited by the Standards Council of Canada. In Europe, safety of products is determined by "first-party", which means that the manufacturer or supplier of that product conducted the conformity assessment and made an attestation that the product complies with the applicable requirements.

There was a market survey done to compare the safety of some consumer products (small household electrical appliances) in North America and Europe that were assessed by respective first and third party evaluation. The published results show that the third-party testing, inspection, and certification provided higher levels of compliance when compared to first-party: **17% of the self-declared products showed dangerous faults, compared to less than 1% dangerous faults for products that were third-party certified.** The market survey was done in 2014 to 2016, by the International Federation of Inspection Agencies and the International Confederation of Inspection and Certification Organisations.



For products evaluated by third-party, a series of safety tests were conducted at an independent lab against established standards. The safety tests were based on applicable safety clauses (e.g. heating, abnormal operations, double insulations, warnings, etc.) within the applicable standards.

This highlights the exposure to potential safety risks created by unapproved electrical products, considering that 17% of self-declared products showed dangerous faults.

Electrical Equipment Approval Requirements (Continued)

Online sales

The European organization, OECD (Organization for Economic Co-operation and Development) has published a report indicating that a range of non-compliant and unsafe products, which have been prohibited from sale or recalled from the market, or present inadequate product labelling and safety warnings, remain available for sale online.

Before purchasing online:

- Know who you are buying from.
- Read safety warnings and instructions in order to make the best choice.
- Check ratings and review.
- Buy products approved for the Canadian market.
- Know which product you should not buy. Visit local and global recall database for unsafe products, such as Health Canada recalls, and ESA recalls.

After purchase:

- Check to confirm that the product bears a certification mark
- Consider registering a product with the manufacturer
- If a safety issue is identified, contact the Health Canada to report the safety problem.
- If the product is unapproved contact ESA to report the unapproved product. https://www.esaproductsafety.com

Electric Vehicles and Ontario Electrical Safety Code Requirements

Popular new acronyms such as V2G, V2H,V2B, etc., refer to changing electric vehicles (EVs) from a means of transportation into energy storage facilities, capable of exchanging energy with the grid, home, load or building.

An important concept to note is that the moment energy starts flowing away from the vehicle it is considered an *energy-production source*.

This is true regardless of whether that energy is consumed by the building/home, or whether there is a balance of energy going back to the grid. The moment energy starts flowing away from the vehicle, it is considered an energy-production source.

Keeping that in mind, here are the main OESC requirements:

- Rule 86-308 requires that EV supply equipment (EVSE) be marked when it is an electric power production source (bi-directional power).
- Rule 86-308(1) requires that other parts of a system—either on or offboard of the vehicle—that are identified for and intended to be interconnected to a vehicle, and also serve as an optional standby system or an electric power production source, be marked accordingly.
- When an EV is used as energy-production source, Rule 86-308(2) stipulates that the requirements of Section 84 apply.

Marking equipment as per Rule 86-308(1) is important, as it identifies equipment with the capability for bi-directional power, and that it has been certified and tested accordingly. The application of Section 84 ensures that the vehicle's interconnectivity with the building's electrical system and the grid is safe.

One of the critical requirements of Section 84 is found in Rule 84-008 "Loss of supply authority voltage". This rule requires that, upon loss of power, any electricity production source—including the EVSE in our discussion—is automatically disconnected from the grid. This is very important for safety, regardless of the capacity of the EVSE and whether that capacity is already consumed by the building loads under normal operating conditions.

Any system that produces even small amounts of electricity can potentially be dangerous. Improperly installed systems can create serious safety hazards to property owners, employees, visitors, supply authority workers, etc. For example, as supply authority workers perform repairs during an outage, even a small amount of power flowing back to the grid through a vehicle could lead to electrocution.

The requirement in Rule 84-008 can be met with the use of an inverter that is suitable for interconnection with electric power production sources and designed to serve as a disconnection device.

Electric Vehicles and Ontario Electrical Safety Code Requirements (Continued)

These inverters and/or power production units are marked as "utility interactive inverter" or "grid-support utility interactive inverter". You could connect the EV through a certified inverter or power production unit to ensure compliance.

Another option is to use EVSE that is marked and specifically certified for that purpose. (UL 9741 "Outline of investigation for electric vehicle power export equipment [EVPE]" is currently the only standard in North America for certifying bi-directional EVSE.)

Other important Section 84 requirements include:

- Ensuring the interconnection arrangement is in accordance with the supply authority (Rule 84-004).
- Disconnecting means for EVSE, Rule 84-020.
- Disconnecting means readily accessible to the supply authority, Rule 84-024.
- Warning notice and single-line diagram indicating there is an interconnected system at the premises. These need to in a conspicuous place, visible to first responders and the supply authority.

Additionally and prior to commencement of work, OESC Rule 2-010 requires the require the electrical design to be submitted for review where an electrical installation includes energy storage systems and/or bi-directional EVSE operating in parallel with the supply authority, and the aggregate rating of the system(s) installed at the same time are in excess of 10 kW.

We are already seeing vehicle-to-grid installations in Ontario; they help support renewable energy sources and balance consumption by charging off-peak and using stored energy during peak demand. They also enable our EVs to serve as emergency back-up power. We need to all work together to understand the technology and ensure they are installed in a Code-compliant manner so we ensure safety of people and property.

Message from the Director

by Soussanna Karas,
Director of Licensing

Electrical Safety is a Shared Responsibility

In this issue I would like to talk about the expectations that having Licenced Electrical Contractors (LECs) and Master Electricians (MEs) licences place on the licence holder and the degree of accountability for electrical safety that is expected of LECs and MEs.

We, in the Licensing department and generally at ESA, regard LECs as our trusted partners when it comes to promoting electrical safety. In every interaction with customers, LECs can show their knowledge of the latest changes in the OESC, compliance with the Workplace Safety requirements, provide a high level of customer service and act with honesty and integrity. These interactions build public confidence in the entire licensed electrical contracting community.

As the electrical industry evolves and new technologies enter the marketplace, it is imperative that LECs and MEs stay informed about the latest changes in the OESC and other applicable regulations. At ESA, we have adopted a focus on Life Long Safety and would like the industry to join us in practicing Lifelong Learning towards that goal. Please see an article on importance of Continuing Education.

ESA has been working to raise public awareness about LECs and urging consumers to hire LECs (see our "Hire an LEC campaign" examples here). There are lots of ways you can help us with this campaign, including by complying with regulatory requirements and continuing to provide high level customer service, such as:

- Issuing proper quotes when contracting for electrical services.
- Displaying your LEC number which signals that you are licenced and insured and have knowledgeable, skilled and experienced staff. This ensures transparency and sets you apart from your competition in the underground economy.
- Once the contract has been entered into, make sure to confirm the details in writing.
- Note that your invoices must be consecutively numbered; they must clearly identify the address of service, work performed and cost of services provided.

Message from the Director (Continued)

ESA is rolling out inspections of LECs to review your books, contracts, invoices and notifications. These are opportunities to educate, direct and motivate compliance with the Act and the Regulations.

Bottom line, being licensed is a privilege; a privilege to be able to provide safe, informed and high quality electrical services to Ontarians. Safety is a shared responsibility and we are proud to share it with you.

CLARIFICATION UPDATE: These record inspections are being used in a very limited and targeted way as part of an escalation of compliance measures where specific issues of concern with an LEC have been identified. It is not a widespread or random audit process.

Regulatory Compliance Program Update

As part of the Licencing Plan, the Licensing Department continues to develop and carry on pilots with the goal to identify, track and target participants in the underground economy to improve electrical safety in Ontario.

Below is the update on our latest pilots:

No Longer an LEC Pilot

A social media search was conducted to determine if there were any recent advertisements and/or testimonials of electrical work performed by former Licensed Electrical Contractors (LECs). These former LECs have had their licence closed, suspended, expired or revoked for the last one to two years.

The social media search focused on recent ads, company websites and business pages on platforms such as Facebook, as well as recent testimonials of electrical work conducted (e.g. on HomeStars, Google, etc).

A total of 422 businesses were searched:

- 42 had a business page advertising electrical contracting services. A Notice of Violation was issued informing the former LEC that they are in contravention of the *Electricity Act* and must immediately stop advertising.
  - *20 businesses have come into compliance by ceasing offering electrical services or removing their business page entirely. The remaining are being monitored.*
- 12 businesses had a recent testimonial or advertisement offering to provide electrical contracting services. Investigations were launched on all 12 businesses.

Regulatory Compliance Program Update (Continued)

Designated Master Electrician (DME) Verification Pilot

According to Regulation 570/05, every LEC must designate at least one DME in order to receive and maintain its licence. Regulation places a very important obligation on the DME: to be responsible for personal planning and direct supervision of electrical work and to ensure compliance with the requirements of OESC, health and safety and consumer protection. If not the LEC owner/principal, the DME must be actively employed and on payroll of the LEC. The DME cannot be a sub-contractor. Any arrangement when the DME is paid for lending their licence number and not actively employed, are considered non-compliant with the requirements of the regulation. The goal of this pilot is to inform and direct LEC's practices with respect to DME employment and management of the business. We have randomly selected 20% of LECs whose DME is not a principal of the business. We are in the process of issuing a Request for Information asking to provide proof of DME employment, such as a Paystub or T4. Those that do not actively employ a DME will be provided opportunities to comply. Failure to comply or respond to our Request will be escalated for compliance action including issuing a Notice of Proposal to suspend the electrical contractor's licence.

Results of the pilot will be communicated in the next issue of Plugged In.

Remember, if you no longer have a DME or should you need to change your DME, it is a legal requirement to notify ESA within 5 business days. All forms are available on www.esasafe.com, under FEES & FORMS.

MASTER ELECTRICIAN EXAM

The 2023 Master Electrician Exam schedule is now posted, check www.esasafe.com/contractors/me-exam for details.

Promoting Lifelong Safety through Lifelong Learning – Three Reasons Why Safety and Technical Training is Worth the Investment

Safety and technical training benefits the entire electrical sector, from electricians and related professionals to electrical contracting businesses and consumers.

In an industry as technically complex as Ontario's electrical sector, where new technology is constantly emerging, it is important to advance your knowledge and skills to remain current on the most up-to-date Code rules and safety practices.

ESA's industry-leading experts develop course content using the latest knowledge on electrical safety, industry trends, learning design principles, the Ontario Electrical Safety Code (OESC), other standards, and applicable codes related to electrical installations.

Three Reasons Why Safety and Technical Training is Worth the Investment:

1 Businesses Can Save Time & Money While Advancing Safety

Electrical safety and technical training courses support the safety and evolution of the electrical industry and its stakeholders, ultimately promoting public safety and welfare in an industry that advances rapidly.

Businesses can save time and money by getting ahead of the knowledge needed to complete safe, Code-compliant installations, while minimizing defects and saving labour and materials. This positions businesses to remain competitive.

2 Individuals Can Upskill and Advance Their Careers

ESA's safety and technical training courses are a pathway to practical knowledge and skills that you can apply immediately in your profession.

Whether you want to grow within your current designation or become a Master Electrician, ESA Training Solution's award-winning team can help you accomplish your career and business goals.

3 ESA Makes it Easy

ESA offers flexible course delivery options to meet your needs and preferences:

- **In-person Classroom:** For those interested in learning directly from a seasoned trainer who is a subject matter expert with extensive field experience.
- **Virtual Instructor-led (ViLT):** For those looking for real-time instruction from an accomplished trainer without the travel. ViLT courses are offered over Zoom.
- **Online:** For those looking for a flexible scheduling option that lets you review the course material at your own pace. ESA's engaging online experience includes a rich multimedia experience with module review exercises, readings, and additional resources.

DON'T WAIT **Register for an ESA course today!**

Click here to sign up for a course in minutes.

Check out ESA's course offerings here or by using your smartphone or tablet to scan the QR code below.

Contact us for additional information: 1-877-372-7233.

Group rates are available. E-mail your Client Safety Specialist at CSS.ContactUs@electricalsafety.on.ca for details.

Training is a non-regulatory service offered by the Electrical Safety Authority (ESA). Learn more about ESA's non-regulatory activities.

Notice of Wiring Fee Increase

On October 3, 2022, ESA implemented a wiring fee increase.

For background, the last time that ESA implemented a wiring fee increase was in 2016.

ESA increased all wiring fees by an average of 2% except in the following areas, which will have no increases:

- $40 residential renovation small jobs
- $40 commercial small jobs and
- $35 HVAC fee

Given the high volume and low risk nature of these jobs, we believe that keeping the above fees low removes them as a barrier to compliance. This will allow ESA to continue to focus on higher risk areas.

In addition, Plan Review fees are being increased on average by 2% as they align with the fees set within the Wiring Fee Guide. Plan Review fees have also been unchanged since 2016.

Overall, the net impact to the wiring fees is 1.84% annualized which is still well under the rate of inflation.

While fee increases are never ideal, given the fact that it has been six years since fees were increased and the overall increase is below the rate of inflation, we believe that these increases are fair and reasonable.

For more information on ESA fees, please visit: https://esasafe.com/fees-and-forms/fees/

Top 10 Defects Podcast Part 2 Now Available

A Licensed Electrical Contractor's defect ratio is one of the factors in determining the risk rating for risk-based oversight, also known as RBO.

We want to support our licence holder community to be consistently compliant with the Ontario Electrical Safety Code and improve their respective defect ratio scores.

In part two of this series, host Karen Ras, Vice President, Communications, Strategy and Innovation sits down with Trevor Tremblay, Technical Advisor, to cover topics ranging from unapproved equipment to non-metallic cable wiring and best safety practices for complex situations.

You can listen to the episode here, and subscribe to all episodes on Apple, Spotify, Amazon or Google.

MLTSD Grant Program For Small Business Health and Safety Reps

For our stakeholders whose businesses employ 6 to 19 workers, we want to share some information about a grant program offered by the Ministry of Labour, Training and Skills Development to support the training of a health and safety representative.

The Small Business Health and Safety Training program will reimburse $175 to eligible employers to train an appointed health and safety representative using the basic health and safety representative eLearning course through a participating training provider.

Find out more about the program here: Small Business Health and Safety Training Program

ESA Access and Privacy Code Update

As part of the renewal of ESA's Administrative Agreement with the Ministry of Public and Business Service Delivery, our Access and Privacy Code has been refreshed. The changes bring our Code in line with those of other delegated administrative authorities. Changes include clarifying the kinds of records that are subject to requests for disclosure and updating the exemptions applicable to those requests. There are also changes that provide more specific details of the processes and timelines for managing privacy and access-related requests, reflecting our priorities of safety and compliance. The new Code can be found here.

Community Events

103rd International Plowing Match

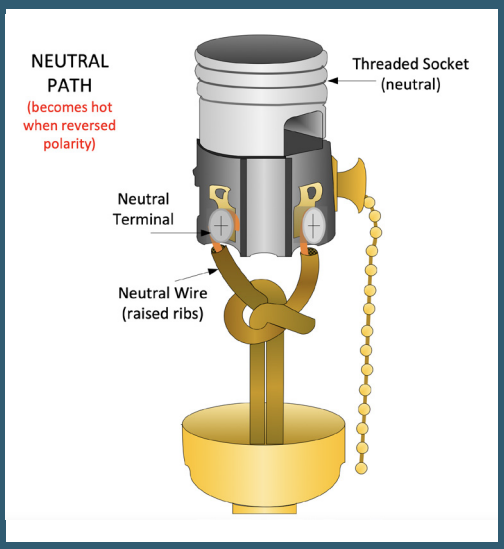
ESA participated in the 103rd International Plowing Match and Rural Expo (IPM) that was held in Kemptville, Ontario from September 20 to September 24, 2022. The IPM is a five-day celebration of agriculture and rural living. The event includes plowing competitions, a range of activities for people of all ages, and numerous opportunities to learn about agriculture and share important safety information including powerline safety and safety around the farm. ESA hosted a booth distributing promotional and educational safety items to approximately 2,200 visitors.

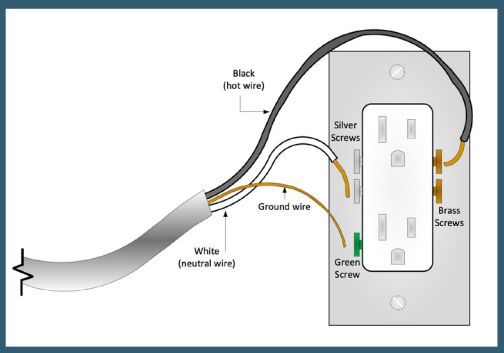
Receptacle Polarity

Rule 26-002 of the Ontario Electrical Safety Code (OESC) requires a device that has an identified terminal or lead to be connected to the identified conductor of the circuit. Applying this to a receptacle, the neutral conductor of the circuit needs to be terminated to the silver screw of the receptacle.

Ensuring correct polarity for receptacles is an important step in preventing a hidden hazard that could lead to electrocution.

Cord caps (plugs) are polarized, so reverse wiring of a receptacle may create a dangerous shock hazard for equipment such as the threaded socket of lamp holders. These could become energized even when the switch is in the off position.





CODE CONUNDRUM

Q1

A totally enclosed no-ventilated Class B motor requires conductors rated at 38 A. The minimum size copper multi-conductor cable can be used is:

A) No. 10 AWG TECK90

B) No. 8 AWG TECK90

C) No. 8 AWG TW75

D) No. 6 AWG TW75

Q2

Rapid shutdown is required for PV systems on or in buildings where the PV source or output conductors are:

A) More than 1.5 metres from the array with shutdown within 10 seconds

B) More than 1.5 metres from the array with shutdown within 30 seconds

C) More than 1 metre from the array with shutdown within 10 seconds

D) More than 1 metre from the array with shutdown within 30 seconds

E) Rapid shutdown is not required

Q3

Equipment marked Ex ia Gb is suitable for installation in Zone 0 location:

A) True

B) False

ANSWERS:

Question 1:

B) *No. 8 AWG TECK90*

Rule 28-104

Question 2:

D) *More than 1 metre from the array with shutdown within 30 seconds*

Table 37 & Table 2

Question 3:

B) *False*

Rule 18-090, Table 18

2022 Virtual Licence Holder Meeting

Are you a licensed electrical contractor or master electrician?

ESA's annual Licence Holder Meeting will keep you up to date on the latest news affecting our industry. This year's key-note address will focus on innovation and how you can build your knowledge and improve electrical safety facing new and emerging technologies. Due to popular demand, the technical Q&A as well as opportunities to ask questions of Licensing and Operations team, is back.

SAVE THE DATE

The virtual Licence Holder Meeting takes place on

Nov. 23, 2022 from 2 – 4 pm.

Prize giveaway is back! Make sure you stay until the end of the meeting to be eligible to win.

We want to hear from you! Let us know what you want to learn more about.
Make sure to submit any Licensing or Code questions along with your registration.

REGISTER NOW

To save your space and receive a Zoom link and password, register here.

After registering, you will receive a confirmation email containing information about joining the webinar.

Looking forward to seeing you all there!

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Electrical Safety Authority

youtube.com/ElectricalSafetyESA

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WE'D LIKE YOUR INPUT

Please send your comments or story ideas to plugged.in@electricalsafety.on.ca.

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