

PLUGGED IN

WINTER 2021



Worth Knowing | p.12

OESC 28th Edition
– Consultation on
Proposed Changes
Starting March 2021



Flash Notice | p.14

Potential electrical
hazards associated
with the replacement
of metallic water
meters or water mains



Code Conundrum | p.17

Moving Forward with Digitalization



Electrical
Safety
Authority



Year-To-Date Convictions



UNLICENSED ▼

Alvaro Almeida, Toronto

Hired an unlicensed electrical contractor

- Suspended Sentence



EXCITING NEWS FROM ESA LICENSING AND PROSECUTIONS

Throughout the past year, ESA Licencing and Prosecutions has been onboard with new developments!

Taking into account all the Pandemic factors that have required ESA to embrace new processes, ESA Licencing and Prosecutions has worked through all the changes in the Ontario Court of Justice system by embracing new electronic document filings, digital signatures, remote commissioning of service affidavits, and most recently the new eBriefs! This is definitively a great achievement moving forward. ESA continues to demonstrate our commitment to electrical safety in Ontario.

In particular, the majority of cases resulting in charges this past quarter are unlicensed contractors either performing electrical installations themselves, or hiring non-licensed individuals to do the electrical work. These same persons have been caught advertising services on certain websites. Another noticeable trend is and continues to be repeat offenders – unlicensed contractors and corporations that have been convicted in the past and again charged with unlicensed activity.

For a quick visual of our current prosecutions based on the new electronic and remote processed cases across Ontario, please see the map below.



REGIONS/TOWNS IN COURT IN Q4, FY21





Year-To-Date Convictions (continued)



\$100,000 FINE FOR HIRING AN UNLICENSED ELECTRICAL CONTRACTOR

On Feb.7, 2020, Great Lakes Greenhouses Inc. of Leamington pled guilty and was convicted in an Ontario Provincial Offences Court for hiring an unlicensed contractor to do electrical work, and was fined \$100,000 plus \$25,000 victim surcharge fee.

In 2018, Great Lakes Greenhouse hired an unlicensed contractor to perform certain work, including electrical work at their greenhouse facility. The worker was re-arranging the wiring and breakers on a live 600v breaker compartment when he received a fatal electrical shock. The electricity had not been properly locked out as required by law.

Charges have been filed against Shawn Reidl, operating as SR Sprinklers, with operating as an unlicensed electrical contractor. The matter is currently before the Court and is awaiting trial.

The victim surcharge fee is credited to a special provincial government fund to assist victims of crime.

Canadian Electrical Code 2021 and Buildings Housing Livestock

Barn fires can be tragic events for farmers, and the loss of livestock, buildings and equipment can be devastating in many ways.

In Ontario alone, approx. 80 reported fires involve barns housing livestock each year, with an estimated loss of \$18.5 million.[*] Approximately 40% of all barn fires are caused by electricity as the ignition source.

The updated requirements in the 2021 CE Code [**] for buildings housing livestock will increase safety and help reduce the risks of barn fires and associated losses.

As environments go, livestock barns can be quite corrosive. Not surprisingly, this corrosive environment is the leading cause of degradation or failure of electrical equipment.

The technical subcommittee responsible for the Code section on barns housing livestock, guided by a study that closely examined the environment in those buildings. The key findings of this study revealed that existing livestock ventilation systems do not adequately respond to elevated moisture or corrosive gas conditions. In fact, environmental monitoring showed that barns housing livestock

regularly experience extended periods of elevated moisture and corrosive gas concentrations.

As a result, the updated rules in CE Code 2021 focus on ensuring electrical systems are designed and installed to withstand these harsh environments. Some of the main requirements include:

- New series of Rules 22-800 to 22-808 require “Buildings housing livestock” to be classified as Category 1 (damp/wet) and Category 2 (corrosive) environments, unless a deviation is allowed by the Authority Having Jurisdiction.
- Distribution equipment and panelboards will be required to be located in rooms that are completely cut off from the corrosive environment.

Canadian Electrical Code 2021 and Buildings Housing Livestock (Continued)

These changes are an excellent example of co-operation between several parties—industry and regulators; a working group from Ontario’s Ministry of Agriculture,

Food and Rural Affairs; insurance companies; and the Ontario Federation of Agriculture—all working toward the common goal of reducing harm and loss in this sector.



NOTES

* Based on data from Ontario’s Office of the Fire Marshal & Emergency Management (OFMEM), which tracks fire incidents across the province, including barns housing livestock.

** ESA is working with the Ministry of Government and Consumer Services (MGCS) on the code adoption process. OESC 2021 edition comprised of the 2021 CE Code and Ontario amendments is planned to come into effect May 2022, pending MGCS approval.

Licensing Corner – Closing Out 2020



by Soussanna Karas,
Director of Licensing

As I reflect on my first year as the Director of Licensing, I must say 2020 was a year like no other. A leader that I very much respect summarized this past year as the most challenging in his career. I am sure many share this sentiment.

COVID-19 has had a devastating impact globally and nationally – leading to illnesses and death, taking a grave toll on people’s mental health and changing everyone’s approach to business. However, it also showed us that we can be agile, resilient, innovative and unite towards a shared goal and work together to achieve it.

Despite the unprecedented challenges, the Licensing team has continued to issue new licences and process renewals, answer more calls and

assist licence holders with questions and concerns. Here are some of the initiatives we have been working on:

- We worked together with ESA teams to launch a successful “Hire an LEC” Campaign educating consumers and the industry about risks of hiring unlicensed individuals.
- We launched Kijiji and WSIB projects pursuing those who advertise and/or perform electrical services without an LEC licence.
- After temporarily stopping Master Electrician (ME) exams in late March, we resumed in July and conducted an extraordinary number of in-person exams in a few short months before the end of the year.
- We doubled our efforts to digitize the ME exam and are excited to announce that we have launched Virtual Proctoring in March of 2021. Please visit [ESA website](#) for the schedule of the Virtually Proctored and In-Person Exams.
- In collaboration and partnership with the ECRA Advisory Council, we held a successful virtual Annual Licence Holder meeting with almost 350 in attendance this year.

Licensing Corner – Closing Out 2020 (Continued)

Looking forward, we are planning and implementing the recommendations listed in the Auditor General Report released on Dec.7, 2020. Working together with the licensed community, ECRA, CoAC, other Advisory Councils

and stakeholders, we strengthen our commitment to the evolution of ESA's licensing, compliance, examination, continuous education and enforcement functions.

I WANT TO HEAR FROM YOU

Do you have a topic, suggestion or comments in relation to licensing, regulation, and regulatory requirements to the LEC and ME licence that you would like to see addressed? Please send me an email: LicensingMatters@electricalsafety.on.ca. We will select a topic from the responses we receive and feature it in the next issue of Plugged In.



Online Renewals and Virtual Exam Proctoring

We are very excited to announce the digital transformation of ESA's Licensing Department business processes both internally and externally.

ESA is committed to providing improved tools & guidance, reducing red tape and making it easier for our licence holders and applicants to comply with regulatory requirements. To help achieve these goals, we are proud to inform you of our Online Renewal/ Virtual Proctoring Project.

Through these projects, ESA is committed to providing improved tools & guidance, reducing red tape and making it easier for our licence holders and applicants to comply with regulatory requirements.



Virtually Proctored Master Electrician Exam Now Available

ESA finalized the online (virtually proctored) version of our Master Electrician Exam to provide more options to the applicants for the Master Electrician licence.

The virtually proctored exam works in a similar way to the in-person exam. It has a “virtual proctor” that supervises the exam taker while they write the exam from the safety of their home or other location. Proctors are used to ensure that the exam rules are being followed and that the integrity of the exam is maintained. Just like the in-person exam you will have to prove you are the person who signed up to take the exam by showing a valid photo ID.

The exam schedule is now posted on our website.

Check **esasafe.com > Contractor > Write the exam** for updates and the exam schedule.

2020 Annual Licence Holder Meeting Summary



The 2020 Annual Licence Holder Meeting was held on November 24. The nearly 350 attendees to the virtual event heard the latest on the Licensing Department activities, enforcement of unlicensed contractors, and risk based wiring inspections. To view the recording of the meeting which includes the Technical Advisor Q & A, visit <https://esasafe.com/meetings-events/licence-holder-meetings>.

Kijiji Pilot

ESA is committed to creating a robust electrical safety framework in Ontario by utilizing education, outreach, compliance and enforcement actions. In support of this strategic goal, ESA continues to conduct activities aimed at addressing the risk posed by electrical work performed by the underground economy, including unlicensed contractors, licensed electrical contractors and property owners.

As an example, since March 2020, ESA has been searching for ads posted by unlicensed persons advertising electrical contracting work on Kijiji. To date:

- **1574** notices of violation have been issued to unlicensed contractors
- **382** notices have been issued to licensed electrical contractors reminding them that it is a license requirement to post their license number in advertisements.

REMOVAL OF ADS

When an ad poster refuses to remove an illegal ad and continues to advertise without an electrical contractor licence, Kijiji, upon notification by ESA will remove the ad.

Kijiji has removed 913 ads posted by 213 unlicensed electrical contractors. Kijiji also sends the individual an educational message on behalf of ESA informing the ad poster of the electrical contracting licence requirements in Ontario and directing them how to obtain a licence.

Those who continue to post are escalated for enforcement action. ESA has initiated 58 investigations into those who are refusing to remove their online ad. More information about the results of the investigations will be shared in future editions of Plugged In.



CUSTOMER EXPERIENCE

Most of us would not dispute that 2020 changed our lives. The pandemic altered how we live, work and play across the province. As the focus on Health and Safety increased, the ability for organizations to adapt and be agile has never been so important. All of this change most certainly has changed how we interact with organizations.

ESA has taken steps over the course of the year to adapt to ensure the safety of its customers, employees and public. Some of these actions were obvious, while others were not. We wanted to highlight several of these changes.

WORKING REMOTE:

Since the middle of March 2020, ESA's Customer Service Centre has been working remote. We managed this transition over the course of a weekend without any disruption to service. While supporting a safe working environment for staff, working remote also ensures that ESA remains ready to respond to your call.

EXPANDING SERVICES ONLINE:

ESA made significant changes to its Online Services with the launch of Risk-Based Oversight (RBO). We have added or are in the process of expanding functions to the online system including Electronic Plan Review submissions, enhancing online and virtual training, and virtual proctoring for Master Electrician Examinations.

TEMPORARY EMERGENCY HEALTH CARE FACILITIES:

ESA has supported the rapid conversion of facilities across the province to support the fight against COVID-19.

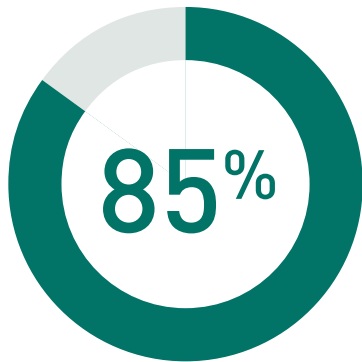
WIDE RANGE OF OPTIONS TO CONDUCT INSPECTIONS

ESA set priorities for inspection while providing inspectors a wide range of options and discretion to safely conduct inspections. Examples include video meetings, offsite virtual reviews at safe locations, based on the level of risk, passing without a visit, and low-touch and social distancing while onsite.

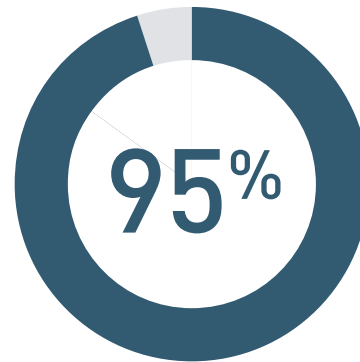
These are just a few of the initiatives ESA has undertaken in the past year. While the last year did not play out as we originally planned, please be assured that we are working diligently to respond to issues as they emerge while supporting public health guidelines. With additional months of uncertainty ahead, ESA will continue to focus on providing you a consistent customer experience, safely.



2021 Plugged IN Reader Survey Results



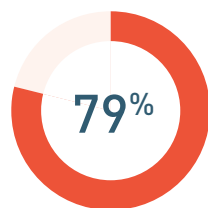
- Overall Reader Satisfaction – **85%** Very Satisfied/Satisfied with Plugged IN



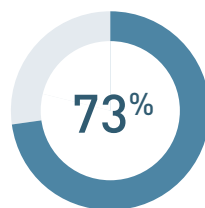
- Over **95%** of readers indicated they liked the digital copy and found it easy to read

Satisfaction By Sections

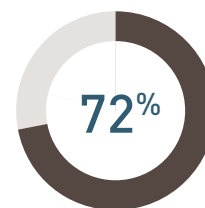
The topics below represent the percentage of respondents that rated their satisfaction with these sections in Plugged IN 4 or higher out of 5.



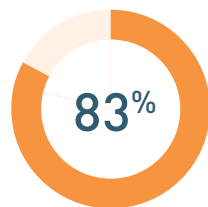
Technically Speaking



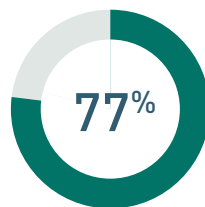
Year-to-Date Convictions



Licensing Corner



Spotlight on Common Defects



Code Conundrum

Based on reader suggestions look for more technical topics in upcoming issues. Thank you to all who participated. To access issues of Plugged IN click [here](#).

Ontario Electrical Safety Code – 28th Edition

CONSULTATION ON PROPOSED CHANGES STARTING MARCH 2021

ESA is seeking the views of LECs and MEs, consumers, the electrical industry and others on proposed changes to the Ontario-specific amendments of the Code. The online consultation will run from March 15 – April 23, 2021.

All consultation materials, including proposed amendments and instructions on how to submit feedback, will be available on ESA's website here <https://esasafe.com/public-consultations>



ESA Offers Virtual Safety and Technical Training

To continue to serve your training needs, ESA's safety and technical training is now available virtually. Virtual classroom training is a responsive solution to continue to provide safety and technical training in a COVID-19 environment. Post pandemic, it provides an opportunity to expand access to ESA's training products and services.

Virtual training is Trainer-led instruction in a virtual online environment, where the Learners and the Trainer are in separate locations. Virtual training is designed to replicate the traditional in-person classroom learning experience while optimizing the convenience and technology of a virtual environment.

For more information including how to register for a virtual public course, or information on scheduling a virtual private course, please visit www.esasafe.com or ask your Customer Service Representative at -1-877-372-7233 for more details.



ESA's After Hours Emergency Call Service Update:

To ensure proper follow-up and consistency of ESA's after hours emergency call service, the on-call inspector will now instruct the Customer Service Center (CSC) to create the notification (permit) when a connection authorization is issued after hours. The Licensed Electrical Contractor (LEC) will be able to confirm this through receipt of the Notification Confirmation. Follow up with the CSC is advised if the Notification Confirmation is not received within two business days.

This process change ensures that the notification is created in a timely manner, and a connection authorization is sent to the LDC when required.

The Fee Guide describes fees charged for services provided after hours. You can find ESA's after-hour fees in Section 2.5.4 (Unscheduled Outside Normal Working Hours) and Section 2.5.5 (After-Hours Telephone Consultation). These fees are not new and going forward will be charged consistently where applicable.



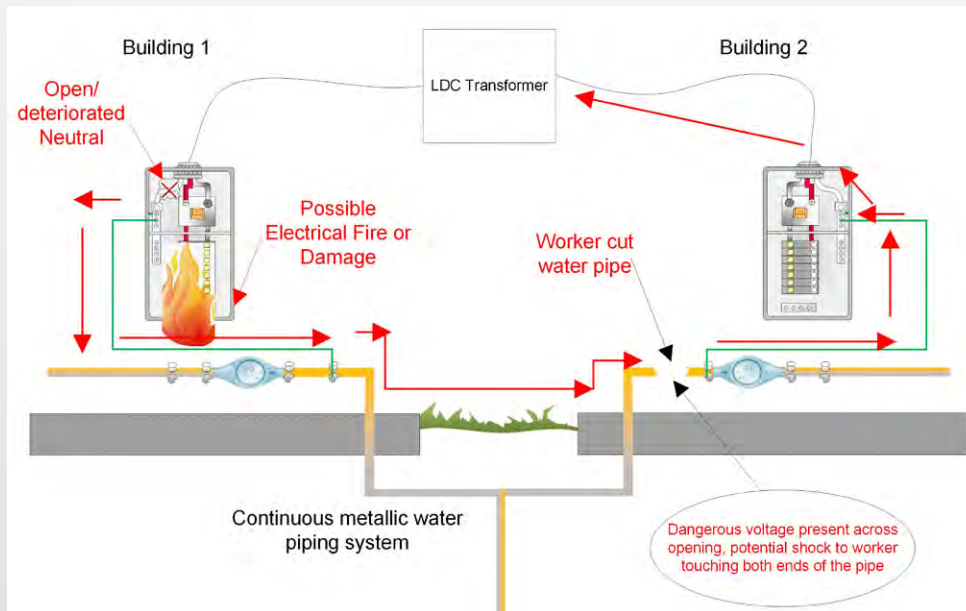
Water Pipe Flash Notice

Flash 20-26-FL
Supersedes 19-26-FL

Potential Electrical Hazards Associated With the Replacement of Metallic Water Meters or Water Mains

Caution Workers who undertake the replacement of a metallic water meter or metallic water piping system should be aware of a possibility of electrical shock or arcing occurring when the continuity of the water piping is interrupted. Always assume there may be flow of electricity in the piping system and deal with the metallic water pipes as if they are energized. A latent fault of a disconnected or deteriorated neutral connection in the electrical system will increase the risk significantly, and removing a water meter or cutting the metallic piping system within or exterior to a building may cause an electric shock to the worker.

DIAGRAM F1 - A CUT IN METALLIC WATER PIPE MAY RESULT IN DANGEROUS VOLTAGE ACROSS THE OPENING



FLASH NOTICE

Recommendation: ESA recommends contacting a Licensed Electrical Contractor (LEC) to assess the condition of the existing electrical system including the neutral and grounding electrode connections. In some cases, arcing may be indicative of a more serious problem with the electrical system which requires investigation by an LEC. The Local Distribution Company should be notified if the LEC has determined the arcing is from external sources. **1.** Replacement of metallic water meters or repair of metallic piping systems An LEC may not be able to detect latent conditions in other premises or within the LDC's infrastructure. For this reason, it is imperative that the continuity of the piping system be kept intact when cutting or replacing a domestic water meter is carried out. The installation of a temporary jumper (minimum No. 6 AWG copper wire) with clamps made for the application across the water meter or between broken sections of metallic pipe would be adequate to ensure the continuity of the grounding electrode is maintained with this type of work. **2.** When replacing the metallic water supply line to a non-conductive water supply line, a new ground electrode is required to be installed by an LEC prior to the existing piping/grounding electrode being removed. Connection to a grounding electrode is considered electrical work. A notification shall be filed with ESA.

December 17, 2020 ©Electrical Safety Authority



SPOTLIGHT ON COMMON DEFECTS

26-656 Arc Fault Protection of Branch circuits for Dwelling Units

Conventional circuit breakers only respond to overloads and short circuits; AFCI breakers de-energize a circuit when an abnormal electrical arc is detected. They can distinguish between harmless arcs that occur as a result of the normal operation of switches, plugs and motors, and undesirable arcs from a damaged lamp cord, for example, or deteriorated electrical infrastructure.

• 26-656 Arc Fault Protection of Branch circuits for Dwelling Units

Currently, the Ontario Electrical Safety Code requires that branch circuits supplying receptacles in a dwelling shall be protected by a combination arc fault circuit interrupter except for the following branch circuits feeding:

- Receptacles required to be located 1 m from a sink or wash basin in a bathroom/washroom (with no other receptacles are connected to these circuits)
- Receptacles in kitchens for fridges, kitchen counters, kitchen islands and peninsulas
- A sump pump receptacle where the receptacle is marked and on a dedicated branch circuit
- Receptacles on kitchen counter for use by persons with disabilities

• Rule 26-656 (3)

The entire branch circuit is not required to be protected by a combination-type AFCI where:

- An outlet branch-circuit-type AFCI is installed at the first outlet on the branch circuit: and
- The wiring method for the portion of the branch circuit between the branch circuit overcurrent device and the first outlet consists of metal raceway, armoured cable, or non metallic conduit to tubing

Q1

In a hospital, when an Electrical Vehicle Energy management system (EVEMS) is installed to monitor the consumer's service loading, and to control the supply to Electrical Vehicle Supply Equipment (EVSE), the demand load of these EVSE is:

- a. 100% of the sum of all EV chargers
- b. 90% of the sum of all EV chargers
- c. As per Table 38
- d. Ignored from the demand calculation of the hospital

Q2

For a 400 A fusible disconnect switch fused at 400 A, fed with a multi-conductor 600 kcmil copper in a raceway, marking is required beside the fused disconnect switch to state:

- a. The maximum permitted continuous load is 320 A
- b. The maximum permitted continuous load is 336 A
- c. The maximum permitted continuous load is 268.8 A
- d. None of the above

Q3

A single conductor cable, carrying a current more than _____ amperes shall be run and supported in such a manner that the cable is encircled by ferrous material at all points of support and at points of entry to enclosures.

- a. 60 A
- b. 100 A
- c. 150 A
- d. 200 A

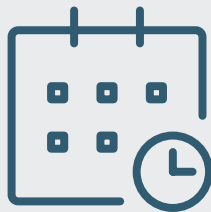
ANSWERS:

Question 1: d. Ignored from the demand calculation of the hospital (OESC Ref: Rule 8-206 & 8-106 11)

Question 2: d. None of the above (OESC Ref: Rule 2-100 4)

Question 3: d. 200 A (OESC Ref: Rule 4-008 3), 12-106 5)

2021 ONTARIO ELECTRICAL SAFETY AWARDS – CALL FOR NOMINATIONS NOW OPEN!



March 15 – June 4

For more information click [here](#).

ESA Auditor General Report – Action Plan

The Electrical Safety Authority has now posted the Action Plan that it will be taking to address the recommendations from the Auditor Generals report. To view the Action plan please click [here](#).



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