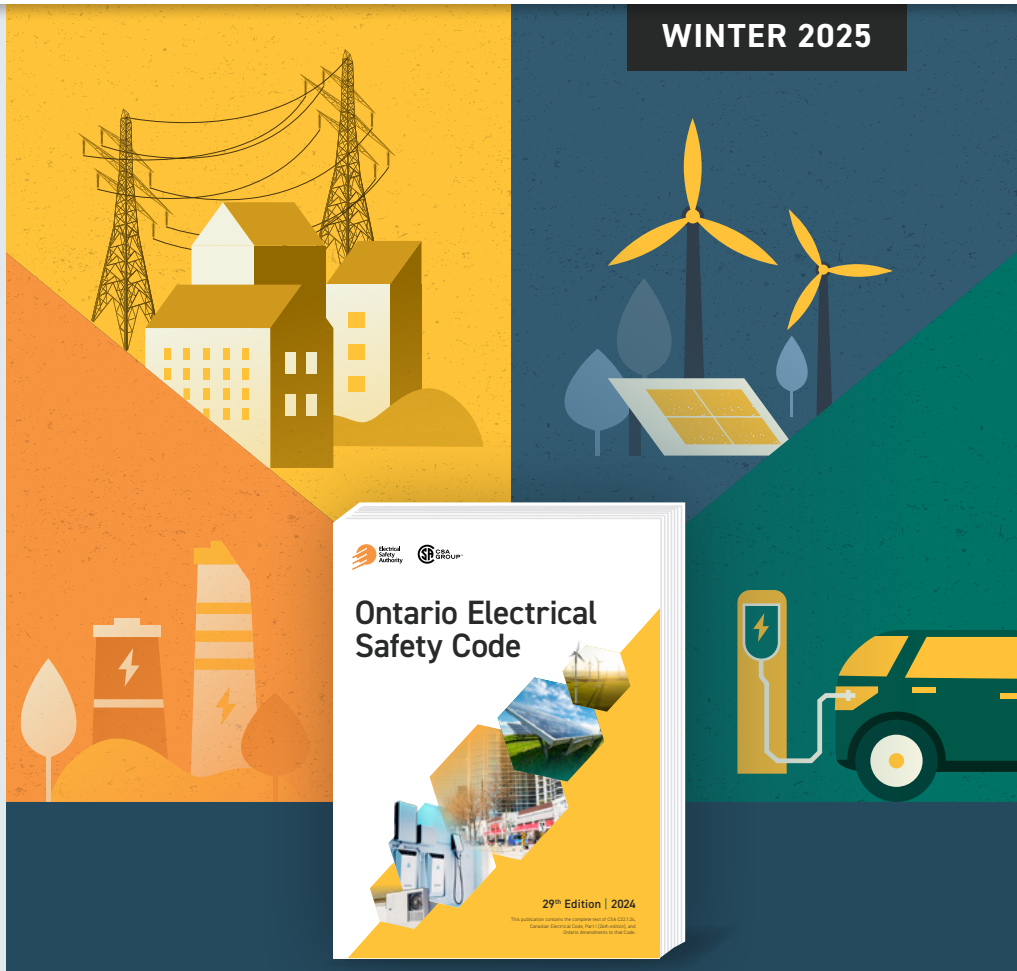
News, Views and Updates from the Electrical Safety Authority

PLUGGED IN

WINTER 2025



The 29th Edition of the Ontario Electrical Safety Code is Coming

p.4 ▶

There are Significant Updates to Wiring and Installation Requirements You Need to Know

Electrical Safety Authority

Convictions

November 1, 2024 – February 28, 2025

The following are convictions under the *Electricity Act, 1998* for violations of the legislation or the Ontario Electrical Safety Code and have been prosecuted through the *Provincial Offences Act*.

Unlicensed

These convictions, which consist of those who have engaged in unauthorized (a.k.a. unlicensed) electrical work in Ontario.

2407554 ONTARIO INC.
O/A J&Y CONSTRUCTION
Location: Dundas

Electrical work formed part of a renovation at a residential property. The corporation was fined $10,000.00 and placed on two years probation for having operated an electrical contracting business, concealing / rendering electrical work inaccessible, and failing to file a notification (a.k.a. an ESA permit).

Two officers / directors of 2407554 Ontario Inc. were also convicted.

Joanna Jin Hua Yu, the corporation's sole officer / director, was fined $7,000.00 and placed on probation, while Chun Zhang, the corporation's president, was fined $1,000.00 and placed on probation.

CASA BAUZA INC.
Location: Toronto

Electrical work formed part of a renovation at a residential property. The corporation was fined $7,500.00 for having interfered with an electrical installation / equipment.

MARTIN DIMITROV
Location: Toronto

Electrical work performed at a residential property. Dimitrov was fined $7,000.00 for operating an electrical contracting business while unauthorized (a.k.a. unlicensed), and $3,000.00 for failing to take out a notification (a.k.a. an ESA permit).

Order

These convictions are of those who have failed to comply with an order of the Electrical Safety Authority.

HAMILTON HOLDINGS INC.
Location: Hamilton

Order related to electrical work performed at a commercial property. The corporation was fined $50,000.00 after it failed to comply with an order of the Electrical Safey Authority.

Shahzada Bakhsh, an officer / director of the corporation, was also fined $15,000.00.

Unlicensed Contractor in Belleville Fined $15,000 After Convictions on Multiple Offences

An ESA investigation completed in October 2024 resulted in the trial and ultimate conviction of Sadadsaralingham Nagamany, an unlicensed contractor based in Belleville, Ontario. Nagamany was convicted of three offences contrary to the *Electricity Act*, namely, operating an electrical contracting business without being licensed, failing to file a Notification of Work with ESA for electrical installations and installing electrical equipment with insufficient guarding to adequately provide for the safety of persons, property and the protection of the electrical equipment.

Between December 1, 2021, and January 31, 2022, Nagamany performed extensive electrical work at a residential property located in Belleville. Despite being unlicensed and failing to file a permit with ESA, Nagamany completed electrical work that included the installation of receptacles, switches, fixtures and wiring as part of a basement renovation. Critically, the work performed by Nagamany was later found to contain 13 defects — two of which were hazardous to the point that the safety of persons and property were at risk.

Nagamany chose not to attend his trial. The court took this factor into consideration during sentencing, along with the aggravating nature of the defects Nagamany left behind. Nagamany was ultimately fined $6,000 for operating without an electrical licence, $3,000 for failing to file a Notification of Work with ESA and $6,000 for performing hazardous electrical work. The hefty combined fine of $15,000 is intended to deter others from similar conduct that puts the safety of Ontarians at risk. This case is but one more example of the serious consequences imposed on individuals who fail to comply with the provisions of the *Electricity Act*.

REMINDER

Rules 2-200 and 2-202 of the Ontario Electrical Safety Code require electrical equipment to be installed and guarded with suitable enclosures for the safety of persons, protection of equipment, and the guarding of bare live parts.

Diving into the 2024 Edition of the Ontario Electrical Safety Code: Pool Bonding Requirements

The 2024 Ontario Electrical Safety Code (OESC) will be coming into effect on May 1st, 2025, and it is intended to enhance electrical safety for the public. One key area of change in the Code is enhancing bonding requirements for pools and hot tubs to prevent shock hazards. The new Code contains substantial changes in Section 68. It is worthwhile to explore the rationale and impacts of these upcoming changes to get a full understanding of their purpose.

The changes were based on the recommendations outlined in the report, ***EPRI Swimming Pool Stray and Contact Voltage Research Outcomes: June 2010 to June 2019***. The report summarized research conducted by the Electric Power Research Institute (EPRI) on the electrical safety risks associated with stray and contact voltage in swimming pools.

There are no publicly available statistics on the number of investigations into complaints of swimming pool-related shocks in Ontario or Canada. That being said, people working in the industry — including pool installers, electrical contractors and utilities — have heard or investigated such scenarios. As a proxy, EPRI estimates that the number of investigations into complaints of shocks around swimming pools and other wet areas in the United States ranged from 500 to 1000 per year over the past 25 years. In most of the identified cases, low levels of shocks were reported. However, a fault condition anywhere in the home — be it at a neighbor's home, or on the utility's neutral side — can generate elevated voltage levels resulting in potential hazards.

Diving into the 2024 Edition of the Ontario Electrical Safety Code: Pool Bonding Requirements

(Continued)

THE THREE MAJOR CHANGES FOR POOLS AND TUBS IN THE NEW CODE ARE AS FOLLOWS:

1. **Pool water** is to be bonded via a corrosion-resistant conductive surface similar to the National Electrical Code (NEC) requirements in the US.

2. Depending on the type of pool and deck construction, **a copper grid** may be required to be constructed below grade with a minimum of No. 6 AWG bare conductor that extends outside of the pool shell.

3. Permanently installed **spas and hot tubs** will require to be bonded to a minimum No. 6 AWG copper ring embedded in conductive surfaces (e.g., concrete slabs). This aligns with the requirements of the equipment standards and their installation instructions.

The underlying purpose of these changes in the Code is to achieve equipotential bonding whenever there is an opportunity to touch the water and a conductive surface at the same time. Section 10 defines **"Equipotentiality"** as the "state in which conductive parts are at a substantially equal electric potential."

The Section 10 Appendix B note to the above definition further clarifies that equipotential bonding describes the interconnection of conductive parts or objects to create equipotentiality between them, including non-electrical conductive objects.

The Appendix B note to Rule 68-058 clarifies that principal further by explaining:

> Equipotential bonding is not required for nonconductive sections of perimeter surfaces that are separated from the earth or other conductive surfaces or raised on nonconductive supports, and is not required for any perimeter surface that is electrically separated from the pool structure and raised on nonconductive supports above an equipotentially bonded surface.

Diving into the 2024 Edition of the Ontario Electrical Safety Code: Pool Bonding Requirements

(Continued)

For spas and hot tubs, the equipment standard C22.2 218.1 — Spas, hot tubs and associated equipment — requires the equipment with at least two bonding lugs to be connected to a local bonding grid. The standard further requires the installation instructions to include a note about the importance of connecting the equipment to a bonding grid to reduce the risk of electric shock. These amendments in the OESC will bring awareness to the importance of these requirements and align the Code with the equipment standards and the manufacturer's installation instructions.

Let's explore the impact of these changes by comparing the requirements of the previous 2021 OESC to the 2024 OESC requirements for different pool constructions:

Pool and Deck Construction Type	2021 OESC	2024 OESC
In-ground fibreglass non-conductive pool installed with either fibreglass rebar, fibre reinforced **concrete** pool deck.	A No. 6 AWG copper ring was required as a minimum to be embedded in the concrete to comply with Rule 68-058 3) iii) for the decking.	New rules require No. 6 AWG copper grid installed as per Rule 68-058 3) b) i), ii), and iii) for the decking. In addition, the water is required to be bonded as per Rule 68-058 7) and 8).
In-ground **concrete** pool installed with non-encapsulated steel (tied together). Pool deck surrounding **concrete** with non-encapsulated rebar steel tied or bonded to pool steel. No vinyl liner installed.	Bonded at 4 equal points with No. 6 AWG copper as per Rule 68-058 3) a).	Same requirement. No change in practice.

Diving into the 2024 Edition of the Ontario Electrical Safety Code: Pool Bonding Requirements

(Continued)

Pool and Deck Construction Type	2021 OESC	2024 OESC
Composite above ground pool. Vinyl liner installed. Decking is non-conductive material such as wood/composite as decking is elevated for above ground installations.	Did not require bonding to the structure.	Requires the water to be bonded as per Rule 68-058 7), 8). No change except for the water bonding.

Understanding the rationale of these changes in the new Code will assist with the implementation of these requirements. Always remember that the purpose is to have everything within reach of a swimmer at an equal potential.

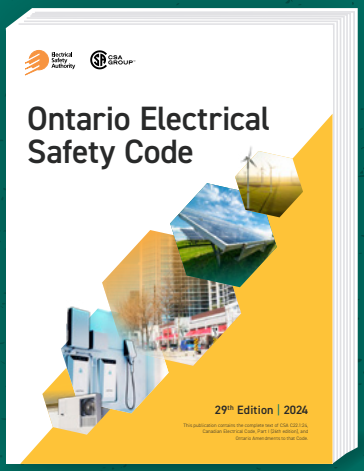
Imagine a swimmer is immersed in the pool water reaching out and in contact with the pool deck. If the water and the deck are at the same voltage potential, no current will flow through the swimmer's body, resulting in a safe scenario.

The 2024 OESC is Available for Order!

The hardcopy of the OESC is available for $243 and a PDF/print version is available for $217.

OESC bulletins and their updates are included as part of the purchase of the 29th edition of the OESC over the entire 2024 code cycle.

To order a copy of the OESC, please visit csagroup.org/oesc24.



Director's Corner: Message from the Director of Licensing

PATIENCE CATHCART
Interim Director of Licensing

As the first months of 2025 come to a close, we wanted to wish our licence holder community and stakeholders a belated Happy New Year. In 2025, ESA remains dedicated to enhancing our processes, reducing administrative burdens and strengthening our support for licence holders. We also remain focused on ensuring compliance and addressing challenges in the underground economy to uphold the integrity of Ontario's high electrical safety standards.

Regulatory Updates and Changes

Now that we are a few months into 2025, I want to remind you of some important regulatory changes that took effect on January 1, 2025. These changes to Ontario Regulation 570/05: *Licensing of Electrical Contractors and Master Electricians* are designed to better serve you, our valued licensed community, and streamline administrative processes. Notably, the requirement to submit a personal photo with your Master Electrician (ME) licence application and renewal has been eliminated. ESA transitioned to issuing digital ME licences and phasing out physical photo ID cards. Please note that the regulatory requirement to provide your ME licence when working as a Master Electrician remains unchanged.

Once you receive your digital ME licence, ensure you can access it on a device you can carry while on the job. The digital Electrical Contractor (EC) licence has also been updated, creating an aesthetically pleasing pair of licences which can be proudly displayed.

Director's Corner: Message from the Director of Licensing (Continued)

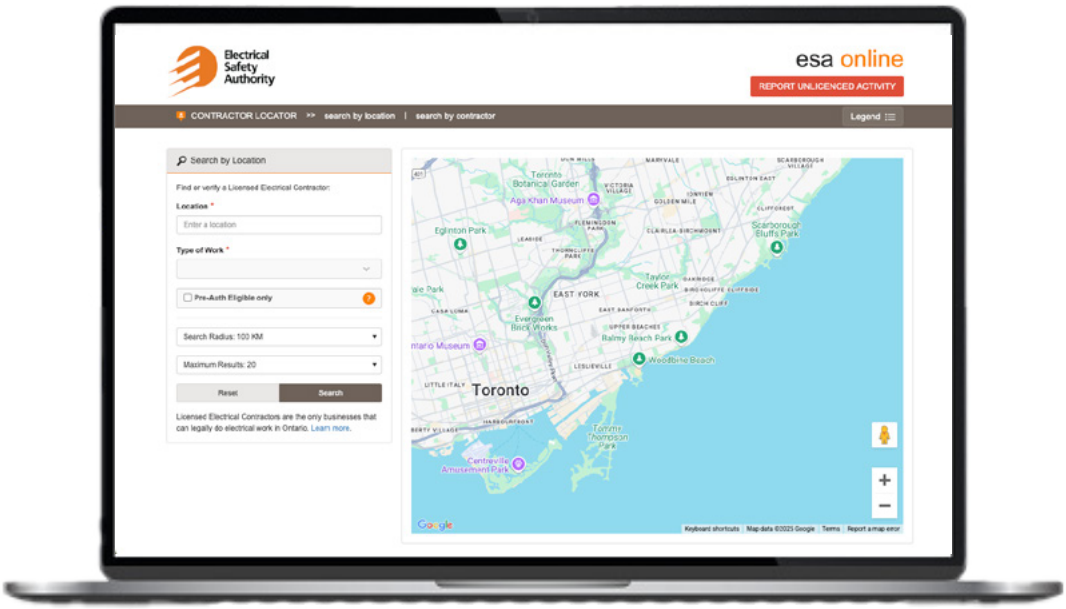
Modernizing Processes: Licensing Technology Platform (LTP)

We are dedicated to making our processes more efficient so that we can better serve you. One of the most exciting updates this year is the development of the Licensing Technology Platform (LTP). This platform will simplify and modernize how you interact with the ESA, allowing for more self-service options, easier access to your information and greater transparency in managing your licence.

The LTP will also enhance the Contractor Locator Tool, helping the public make informed decisions when hiring a Licensed Electrical Contractor.

An additional improvement is the Online Complaints Submission Tool, providing a more efficient means to report non-compliance. Alongside these upgrades, process changes will help both the Designated Master Electrician and the LEC with the ME designation process.

We're excited about the launch of LTP and its potential to reduce administrative tasks, making your interactions with ESA simpler and more efficient. Stay tuned for further updates, including the official launch date.



Director's Corner: Message from the Director of Licensing (Continued)

ME Competency Profile Resource Library

If you haven't explored the ME Competency Profile Resource Library, I encourage you to do so. This newly completed resource library is designed to support you in upholding the highest standards of professional integrity, regulatory compliance and continuous development. By offering easily accessible tools and resources, most of which are free, we empower you to maintain exemplary customer service and contribute to enhanced electrical safety across Ontario.

1 Health and Safety

2 Ontario Electrical Safety Code

3 Legal

4 Financial

5 Management and Administration

6 Technical Knowledge and Skills

7 Advocacy

8 Professionalism and Ethics

9 Continuing Education

Thank you for your continued commitment to electrical safety and consumer protection. We look forward to working together in 2025 and beyond.

Important Updates on the Master Electrician (ME) Exam

We are pleased to share important updates regarding the Master Electrician (ME) Exam. We are proud to continue evolving and have made several enhancements to the ME Exam process. By supporting the ME Exam, we empower all licence holders — both MEs and LECs — to continue advancing professionalism, trust and electrical safety for Ontarians.

Reflecting on Last Year's Success

Last fiscal year, 1,330 individuals sat for the ME Exam, with a 74.4% pass rate, resulting in 875 new Master Electricians! This success not only highlights the dedication of those pursuing licensure but also strengthens the network of Designated Master Electricians (DMEs) who support Licensed Electrical Contractors (LECs) across Ontario.

This achievement wouldn't have been possible without the hard work and commitment of our Master Electrician Examination Committee (MEC), a subcommittee of the Electrical Contractors Registration Agency (ECRA) Advisory Council. Their expertise and dedication are deeply valued, and we are grateful for their continued contributions to the process. Thank you, MEC members, for your commitment to maintaining the high standards of the ME Exam.

Addressing Security Concerns

In 2024, ESA launched an investigation into a security breach involving the virtual ME Exam format. Preliminary evidence suggested instances of cheating, prompting ESA to temporarily pause the virtual format to ensure the integrity of the exam process. In-person exams continue to be available for applicants province-wide.

As part of this investigation, one ME licence has been revoked, and ESA is pursuing further legal action. We will provide more information as the investigation progresses.

Important Updates on the Master Electrician (ME) Exam (Continued)

Integrity Is Key

We want to remind all prospective licence holders that integrity is at the heart of the licensure process. The *Electricity Act* mandates that licence holders act with honesty and integrity. Any form of cheating or dishonesty not only undermines public safety but also carries serious, long-term consequences for both exam applicants and the broader community.

ESA takes violations of the *Electricity Act* and ME Exam Rules of Conduct seriously and may pursue legal and/or regulatory actions, including disqualification, suspension, refusal and/or revocation of the licence.

Pursuing a licence without the necessary technical, safety and business knowledge endangers customers and puts lives and property at risk. ESA remains committed to upholding stringent ME Exam standards to protect both our licence holders and the public.

Improvements to the ME Exam Process

We're excited to announce several key improvements to the ME Exam process for the year ahead. These enhancements focus on three core goals: availability, accessibility and security.

1. **Availability**

We've increased the number of available seats by over 20% in 2025 and are adding five new exam locations to reduce travel time for applicants across the province.

2. **Accessibility**

We remain committed to equitable access for all applicants, including those needing accommodations or living in remote areas of the province.

3. **Security**

We continue to implement industry-leading practices and are taking steps to further safeguard the integrity of the ME Exam process.

ESA, with the continued support of the MEC, remains committed to providing an exam experience that is accessible, available and secure. This ensures that Ontario's Master Electricians are well-equipped to maintain the trust of the public and uphold safety standards across the province.

LECs and MEs from Across Ontario Attended ESA's Annual Licence Holder Meeting

In collaboration and partnership with the ECRA Advisory Council, nearly 600 people tuned in for ESA's virtual Licence Holder Meeting (LHM) on November 20, 2024, to learn more about the latest developments in the sector and for some technical Q & A on emerging technologies and industry topics.

On November 20, 2024, ESA held another successful virtual annual Licence Holder Meeting (LHM). It was attended by 587 representatives in the electrical industry, including Licensed Electrical Contractors (LECs), Master Electricians (MEs), members of the Ministry of Public and Business Service Delivery and Procurement (MPBSDP), ESA staff and ESA Board and Advisory Council members.

The agenda for the virtual session was packed with meaningful content, with presenters covering a diverse range of topics for our valued licence holder community, including:

- Todd McCarthy — Minister of the MPBSDP — providing a video address noting the important work LECs and MEs are doing to keep Ontario running safely.
- Dr. Stephanie Mason — Interim Medical Director at the Ross Tilley Burn Centre at Sunnybrook Hospital — highlighting medical and research advancements dedicated to improving long-term outcomes for burn patients, including those caused by electrical injuries.
- ESA's Licensing, Regulatory, Communications and Operations departments providing updates on the organization's efforts to reduce the competitive advantage of unlicensed work through its enforcement tools, along with an overview of the upcoming changes in the 29th edition of the Ontario Electrical Safety Code.
- A moderated Q & A session with ESA's team of Technical Advisors and representatives from the Licensing, Operations and Regulatory departments.

LECs and MEs from Across Ontario Attended ESA's Annual Licence Holder Meeting (Continued)

You Can Now Watch and Share a Recording of the 2024 LHM

If you missed and want to watch or share the 2024 LHM with others, you can now view a recording of the virtual event on YouTube or by visiting the event page for the LHM on ESAsafe.com.

Did You Miss the Q & A Portion of the LHM? Below is a Sample of Questions Posed and Answered During the Event.

Q How do you book an inspection and what can be expected in terms of communication and arrival times?

- You can schedule inspections using the LEC online portal, the ESA ON Mobile app and by calling (1-877-372-7233) or emailing the ESA Customer Service Centre (ESA.cambridge@electricalsafety.on.ca).
- The scheduling calendar allows users to quickly see which days an ESA inspector is available and which days the inspector is not in the user's area, allowing them to book accordingly.
- Inspectors manage their day based on their area demands and communicate accordingly. In some areas of the province, inspectors use a mapping tool that provides them with a system for planning inspection routes and enables them to communicate inspection timelines with customers.
- ESA will make best efforts to communicate visit intentions with the Contractor based on the timing of the scheduled requests. If the Contractor does not receive notice that the notification has been passed without a visit or scheduled for a different day, they are to assume ESA will attend the site and ensure site access until 4:30 pm. However, if you're facing access challenges or need to discuss alternative arrangements, ESA Customer Service Representatives can help find a solution.

LECs and MEs from Across Ontario Attended ESA's Annual Licence Holder Meeting (Continued)

Q Why are hospital grade isolated ground (IG) receptacles available, yet are not permitted for use in patient care areas?

- IG receptacles rely on one bonding connection point which would be a single point of failure.
- With the vulnerability of the patient, the CSA Z32 standard prohibits these products from patient care areas, which is duplicated in the CE Code and OESC.
- IG receptacles can be used in non-patient care areas if a more robust receptacle would suit the application.

Q Is T90 permissible to be run in conduit outdoors above ground? Or is it considered a wet location and needs RW90 or equivalent?

- Yes. Most T90 carries a dual rating of TWN75, which permits it to be used in a wet location as identified in 12-102 3), although with a derated insulation temperature and ampacity.

Q What are the requirements for service call repairs, as well as the requirement or modification of previously certified equipment?

- A notification is required for all work on an electrical installation.
- A product, or equipment, is certified using other standards than the OESC, any modifications/repairs would need to be done by the Original Equipment Manufacturer (OEM) or their agents in a manner that is supported by the certification of the product.
- As these modifications usually do not involve contacting the branch circuit conductors that feed the equipment, it would not require a wiring Notification of Work with ESA.

Q Can I extend a receptacle circuit without a bonding wire?

- No. 10-600) requires all electrical equipment to be connected to a bonding conductor.
- Also, 26-702 3) clarifies that for two wire circuits, commonly knob and tube, that are protected with a GFCI device, a bond cannot be extended to other outlets. This effectively clarifies that two wire circuits cannot be extended.

LECs and MEs from Across Ontario Attended ESA's Annual Licence Holder Meeting (Continued)

By the Numbers

587 Attendees

218 Technical and Non-Technical Questions Answered

81 Questions Pre-Submitted in Advance of LHM

10 Presentation Speakers

20 ESA LHM Team Project Members

137 Questions Submitted During LHM via Zoom Chat

Thank you to everyone who participated and contributed to making the 2024 LHM a resounding success! We are already planning for next year's meeting — we look forward to seeing many of you there.

Questions or Feedback? Reach out to ESA's Licensing team at LicensingMatters@electricalsafety.on.ca.

Congratulations

to the Winners of This Year's Licence Holder Meeting Giveaway!

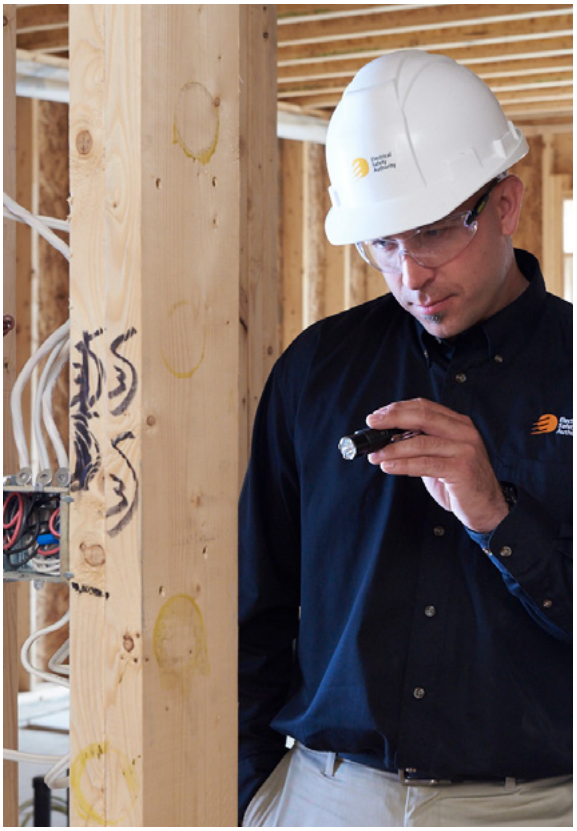
Our fifteen prize winners were randomly selected and have already been notified about their prize — an ESA-branded coffee tumbler.

Update on ESA's Building Permit Initiative

ESA conducted reviews of building permits in Clarington and Ajax in an effort to combat unlicensed and unpermitted work. Through this initiative, building permits issued for both residential and commercial projects were reviewed to determine if electrical work was performed without filing a Notification of Work with ESA.

What we Found in Clarington

In the Fall 2024 issue of Plugged In, ESA reported on the results of reviewing building permits issued between January 2022 and May 2023 in the city of Clarington. In that timeframe, a total of 66 locations were flagged for ESA to follow up on. In doing so, 24 of those sites were found to have had an electrical installation completed without a Notification of Work ("ESA permit") being filed.



ESA has since reviewed building permit data issued between June 2023 and December 2023 in Clarington. We found 41 locations that may have had electrical work performed without an ESA permit being filed.

ESA followed up on those locations and confirmed 8 had an electrical installation completed without a permit filed with ESA. Overall, in the past year, 107 locations were reviewed in Clarington and 32 of them did not have an ESA permit filed despite requiring one.

Update on ESA's Building Permit Initiative (Continued)

Update on Ajax

In the summer 2024 issue of Plugged In, we reported on the first round of building permits reviewed in the city of Ajax between December 2023 and January 2024. In that time frame, a dedicated ESA inspector followed up on 50 locations — 19 of which were flagged for completing electrical work without an ESA permit.

ESA has since initiated a second round of review of building permits in Ajax and compared it with ESA permits filed.

106 locations suspected to be without electrical permits found that electrical work was performed without a permit being filed. 24 of those sites had an electrical installation completed without an accompanying ESA permit. Importantly, 14 of those 24 sites (58%) filed for an ESA permit within 30 days of an inspector site visit.

In summary, Clarington and Ajax combined in 2023 found that electrical work without an ESA permit was performed by:

53 unknown companies/individuals

11 homeowners

7 unlicensed contractors

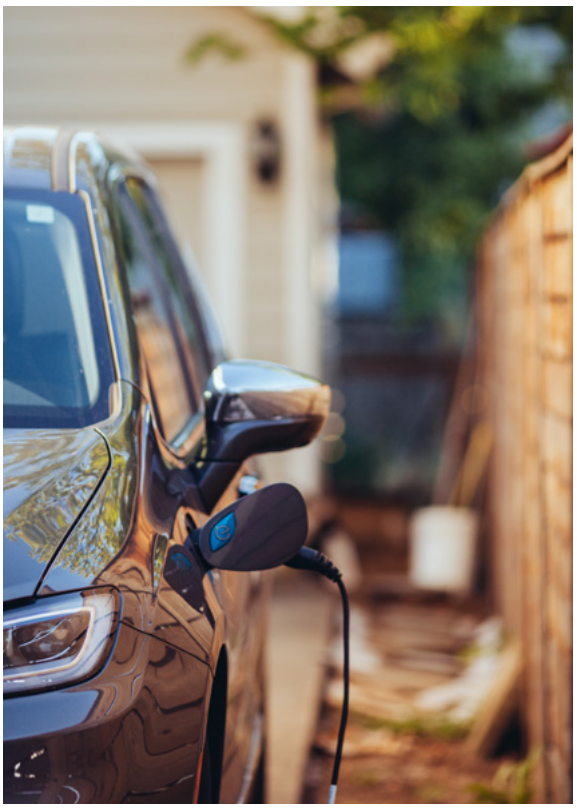
4 Licensed Electrical Contractors

Taking on the Underground Economy Remains Mission-Critical for ESA

Although ESA is sometimes unable to determine who completed electrical installations in select cases, the Building Permit Initiative remains a critical initiative for us to proactively educate and take the appropriate enforcement and compliance actions against those who purposely and/or repeatedly refuse to comply with the OESC and its accompanying regulations. We know that taking on the underground economy remains central to protecting Ontarians from electrical harm while upholding the integrity of the electrical trade.

The Latest on ESA's EV Charger Crackdown

In the Fall 2024 issue of Plugged In, ESA reported on the shocking findings of our crackdown on unpermitted installations of EV chargers at residential units across five cities in Ontario. By cross-referencing the Ministry of Transportation's EV registration data with the number of notifications issued for EV charger installations, it was determined that a staggering 25% of homes with EV chargers had skipped an ESA permit.



Importantly, all EV charging system installations require an ESA permit, including those installed at commercial sites. Given the importance of ensuring compliance at both residential and commercial sites, ESA conducted a similar safety blitz of EV charger installations at commercial sites. We did so by cross-referencing data from the Ministry of Natural Resources on locations where EV charging systems had been registered with an ESA permit. Through this initiative, ESA identified 365 locations where EV chargers were possibly installed without an ESA permit. ESA's dedicated inspectors confirmed that 89 of those sites had chargers installed without an ESA permit.

The Latest on ESA's EV Charger Crackdown

(Continued)

Upon further review of those 89 sites, it was also determined that EV chargers were installed by:

67 unknown entities/individuals

22 Licensed Electrical Contractors

As with the residential EV charger safety blitz, the initiative had a meaningful impact on bringing EV charging sites into compliance. Specifically, once educated on the need to file for an ESA permit for the EV chargers, 35% of the commercial sites promptly did so.

Filing a permit with ESA for EV charger installations is not merely an administrative task. Instead, they ensure chargers are installed safely, comply with the code and, ultimately, protect Ontarians from electrical harm, including electrical fires.

Specifically, once educated on the need to file for an ESA permit for the EV chargers, 35% of the commercial sites promptly did so.

REMINDER: All EV Charging Systems — Including Residential and Commercial Sites — Require an ESA Permit

Regardless of where an EV charging system is being installed, an LEC must file a permit with ESA when work begins. At the time of application, an LEC must specifically indicate an EV charger is being installed. There is a separate fee code for the inspection of EV charging systems.

Notice of ESA 2025 Fee Changes

To respond to inflationary pressures, the ESA plans to increase wiring and licensing fees by 2.2%. These changes will come into effect on April 1st, 2025.

This increase reflects the inflationary pressures that the ESA, and many organizations, are facing, while continuing to deliver on the ESA's important mandate for sector and public education, and investing in operational efficiencies and digital strategies.

Along with this inflationary increase, there will be a few additional changes:

- **Fees for Solar Photovoltaic systems, greater than 10kW, will be reduced by 25%.**
- **Fees for Entertainment productions will increase.**
  - → C032 for Theatre, Film, TV and Video will be rising to $327, and C041 for Commercials will be rising to $170.
- **A fee for Deviation requests will be introduced. A Deviation request is an optional service for those considering deviations from the Ontario Electrical Safety Code.**
  - → A fee of $388 will be introduced for the first two hours of review time, and then a fee of $194 per additional hour of review. These fees reflect the time and effort required from ESA personnel, along with the increasing complexity of these requests.

For clarity, the fee increase in October was a reflection of 2023 inflationary costs and the fee increase in April is related to 2024 inflationary costs.

Going forward, ESA will implement fee changes in-line with the beginning of the fiscal year, on April 1st, to provide predictability for the sector.

The ESA recognizes the impact that fee changes put on our stakeholder community and will continue to drive public value through our financial and operational performances. ESA will continue to find ways, like the ESA ON Mobile App, to drive cost and burden reduction in the sector.

When Will the ESA Fee Guide Be Updated?

The ESA Fee Guide is in the process of being updated and will be posted prior to the April 1st implementation at: ESAsafe.com/fees-and-forms/fees/.

ESA Enhances Online Services for the Licence Holder Community

We are excited to announce that ESA has updated its online service applications, actioning feedback received directly from the licence holder community. At ESA, we are committed to continuously improving our operations, making it easier and more efficient for contractors to do business with us.

1 AN UPDATED VERSION OF THE ESA ON MOBILE APP IS NOW AVAILABLE!

A new and improved version of the ESA ON Mobile app was rolled out on October 29, 2024. Licensed contractors provided important feedback to our team, noting that some users experienced the following "bugs" intermittently:

- App froze when the user reset their password, or left the application to timeout
- Pop-up appeared requesting the user to download a secondary app
- Evidence upload failure

ESA worked closely with our app vendor to address the above issues and to improve the overall stability of the ESA ON Mobile. Importantly, the updated app now reduces the frequency of timeouts and crashes, particularly when using the Remote Inspection feature.

Current users of the app should have received a pop-up letting them know an update was available.

We encourage all users to update to the new version of the ESA ON mobile app for the best user experience.

ESA Enhances Online Services for the Licence Holder Community (Continued)

2 THE ESA LEC PORTAL HAS BEEN UPDATED

The LEC Portal has recently been updated with enhancements aimed at improving the overall experience of the platform for users. Those updates include:

- Adding messaging in the notification creation process that helps contractors identify when a notification could be submitted as a small job, preventing the need to "backtrack" in the application to a previous step.
- Improving the scheduling screen to make it less confusing.

If you haven't signed up for online access yet, please contact our Call Centre at 1-877-ESA-SAFE (1-877-372-7233) and a representative will set up your account. It's that easy!

ESA STRIVES TO CONTINUOUSLY BETTER OUR CONTRACTOR SYSTEMS AND PROCESSES

Have a suggestion on how we can improve the ESA Online Services experience? Please send us an email at: ESA.onlinesupport@electricalsafety.on.ca.

The Future of Energy Storage Systems

Understand the latest installation guidelines, including using fine-strand cables, maintaining one-meter working spaces and adhering to location restrictions like avoiding crawlspaces or bedrooms to reduce severe hazards.

The Role of ESS in Sustainable Energy

Energy Storage Systems (ESS) are revolutionizing the way individuals and businesses manage energy, providing cost-saving opportunities, increased energy reliability and a pathway toward sustainability. ESS is particularly reshaping energy usage when paired with solar systems. "A solar array plus ESS is especially popular in remote locations," Trevor Tremblay — a Technical Advisor at ESA — explains. "You use the solar and batteries to run your dedicated panel throughout the day and only rely on the utility when needed."

ESS also aligns seamlessly with electric vehicle (EV) technology. "We're seeing ESS inverters coming out with EV charger systems built in," he said. "You plug the car right into the ESS." Trevor explains this dual functionality not only enhances convenience but also simplifies installation for contractors.

Safety and Certification Are Non-Negotiable

Trevor notes the growing popularity of ESS has also introduced safety challenges, emphasizing the importance of working with certified systems:

> Because of the increased interest in these systems, there are some sellers out there that aren't supplying fully certified equipment. It's very important for buyers and [contractors] who are doing the install to check for the right marks.

The Future of Energy Storage Systems (Continued)

Certification for ESS is complex since systems often consist of multiple components, each requiring its own approval. Trevor clarifies that "the whole energy storage system needs to be approved to UL 9540. Nonetheless, the multi-part BESS still requires to have overall approval to UL 9540."

DIY installations, Trevor warns, are particularly risky: "These are very complex installations. The best thing you might end up with is a bunch of useless and expensive equipment. The worst? You could burn your house down."

Installation Best Practices: Space, Wiring, and Location

Proper installation is key to ensuring both safety and performance. Trevor outlines critical guidelines for contractors:

- **Wiring**: For field-assembled ESS, installers must use fine-strand cables, not welding cables, which are not voltage-rated.
- **Working Space**: Safety regulations require at least one meter of clear space in front of ESS equipment, providing enough room to get away from the equipment if there's a hazard.
- **Location**: ESS cannot be installed in crawlspaces, bedrooms, or rooms directly connected to sleeping areas. The room must have a self-closing door, gypsum board walls, and an interconnected smoke alarm.

For commercial properties, regulations are more flexible, but Trevor reminds contractors that the system must still be certified to 9540 and meet spacing requirements from windows, doors, and points of egress.

The Future of Energy Storage Systems (Continued)

Battery Types: Lithium-Ion vs. Lead Acid

Not all ESS setups are the same, with lithium-ion and lead-acid batteries presenting distinct advantages and risks. Lithium-ion is more popular due to its higher energy storage capacity, but as Trevor notes, it carries "a higher risk of fire."

Conversely, while lead-acid batteries are safer, provided they are properly ventilated, they store less energy. Trevor advises that, with proper maintenance, lead-acid batteries are "pretty much trouble-free."

ESS are not just technological innovations; they represent a critical step toward sustainable and reliable energy. However, safe installation and adherence to regulations are paramount to avoiding costly or dangerous mistakes.

For LECs and homeowners looking to integrate ESS into their energy solutions, following best practices and relying on licensed professionals will ensure a smooth and secure transition to this exciting new technology.

ESS are not just technological innovations; they represent a critical step toward sustainable and reliable energy. However, safe installation and adherence to regulations are paramount to avoiding costly or dangerous mistakes.

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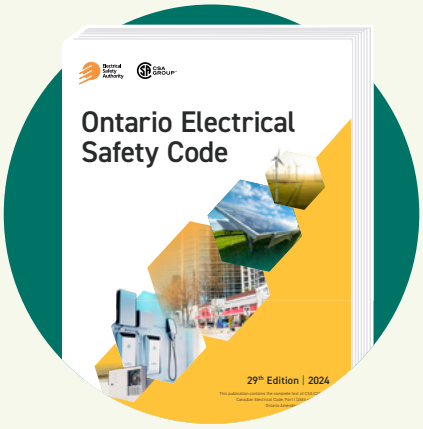
- **Clearer Separation Guidelines**
- **Enhanced Bonding Requirements**
- **Additional GFCI Requirements**



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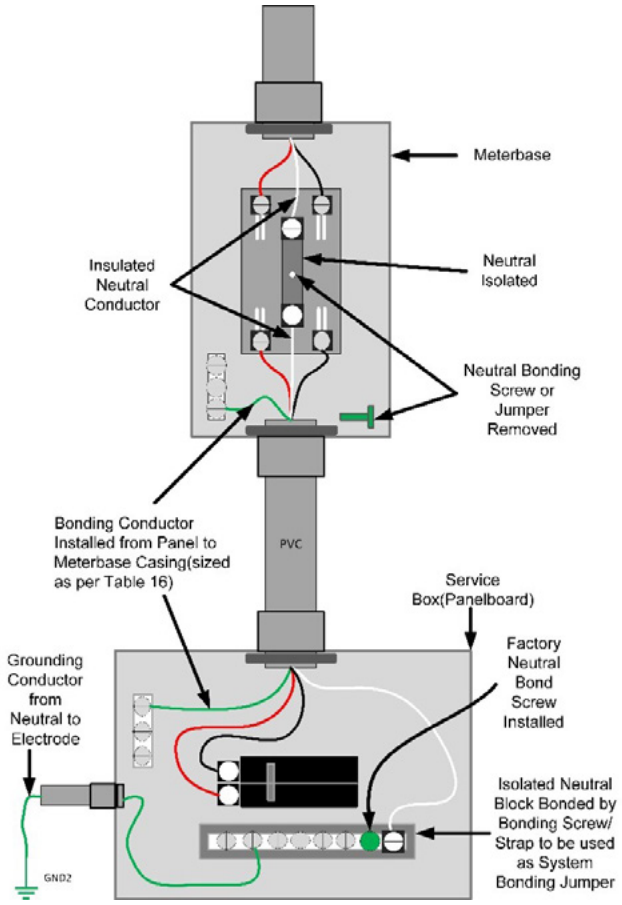
Single Point Grounding: OESC Rule 10-210/Bulletin 10-15-*

Did You Know?

The Single Point Grounding concept was introduced in the 2018 Ontario Electrical Safety Code (OESC). A lot of rules in Section 10 are based on this concept. With the new 2024 OESC taking effect on May 1st of this year, it is critical to align all grounding and bonding practices with this important concept.



Background:

Where metering equipment is installed on the supply side of the service box as permitted by Rule 6-402 2), Bulletin 10-15-* provided permission for the grounding connection to be made at the service box, and for the service neutral to be connected to the meter enclosure. The Bulletin also permitted the bonding connection between the meter enclosure and the service box to be provided by the service neutral conductor. A separate bonding conductor was permitted to be omitted (see Diagrams B1 and B2 of the current Bulletin 10-15-7).

In previous years, there were no meter base products on the market to meet the intent of OESC Rule 10-210 for single point grounding. Now that there are meter base products on the market to meet Rule 10-210, the intention is to move forward in removing the permissions identified in Bulletin 10-15-7. Other provinces have removed these permissions based on product availability.

Single Point Grounding: OESC Rule 10-210/Bulletin 10-15-* (Continued)

HERE ARE THE REQUIREMENTS YOU NEED TO KNOW:

- **The permissions in Bulletin 10-15-7 to not withstand OESC Rule 10-210 will be removed.** Compliance with Rule 10-210 will now be required where a grounding connection to the supply neutral can be made in one location only. No other connection to metal parts of the electrical equipment is permitted on either the line or load side of where the grounding connection is made.
- **The new OESC takes effect on May 1st, 2025, and the updated Bulletin 10-15-8 will be published in the same month.** However, the enforcement of Rule 10-210 and the updated Bulletin will be extended to October 1, 2025, to allow time for the industry to adapt.
- **The type of meter base used needs to be aligned with the location of the grounding connection, and a bonding conductor will be required between the meter base and service box.** There are currently several meter base products on the market to achieve a code-compliant installation:
  - → Neutral permanently isolated from the enclosure.
  - → Neutral supplied with means to bond, ground or isolate from the enclosure (must be provided with marking on the temporary tag, instructions sheet or equivalent indicating how the bond is to be removed or installed).

FOR MORE INFORMATION AND DETAILS ON ACCEPTABLE INSTALLATION ARRANGEMENTS, PLEASE REFER TO THE UPDATED BULLETIN 10-15-8 THAT WILL BE PUBLISHED IN MAY 2025.

The updated bulletin can be found on ESA's website: ESAsafe.com/electrical-products/bulletins/

Heat Pumps: What You Need to Know

Did You Know?

Heat pump technology has advanced considerably making it possible to use them as the main heating source in cold climates. However, heat pumps, like other electrical loads, might increase the electrical load demand within a building.

Background on Heat Pumps:

There are different types of heat pump technologies in the market, and some technologies require supplemental heat. If supplemental heat is electric, it would lead to simultaneous operation of all electric heating sources. Likely this would increase the load demand on feeders and service conductors.

- For example, air-source heat pumps enter defrost mode cycle during cold seasons. This could be one of the reasons why some systems require supplementary heating.

There can be other situations where heat pumps might lead to significant additional electrical loads within a building, some examples below:

- No interlocks between heat pump and other electrical heating sources to prevent simultaneous operation.
- Shifting heating loads from gas to electric.

All the above scenarios might lead to overload on service and feeder conductors, leading to fire hazards.

MUST-KNOW INFORMATION ON HEAT PUMPS

Heat pumps are similar technology to air-conditioners and, as such, the Ontario Electrical Safety Code (OESC) has several requirements that are applicable to this technology, including overcurrent protection, disconnecting means, and wiring requirements.

Bulletin 8-3-* was updated to include a section about heat pumps load demand calculations.

Refer to Bulletin 8-3-* Section 7 for more detailed information.

How Well Do You Know the Code?
Take Our Quiz and Test Your Technical Knowledge.

Q1

To assure a permanent ground connection, which of the following means are to be used to connect the grounding conductor to a grounding electrode?

a. A bolted clamp

b. Brazing

c. Silver solder

d. Any of the above

Q2

For the use of conductors marked PR I exposed to oil, what is the conductor insulation temperature limitation?

a. 60 °C

b. 75 °C

c. 90 °C

d. 110 °C

Q3

What is the maximum nominal voltage for branch circuit lighting in other than dwelling units?

a. 208Y/120 V

b. 480Y/277 V

c. 600Y/347 V

d. None of the Above

Answers

Question 1: d. Any of the above *Ref Rule 10-118 1) a), c), and d).*

Question 2: a. 60 °C *Ref Rule 12-102 5) a).*

Question 3: c. 600Y/347 V *Ref Rule 30-102 2).*

Utility Disconnect for Renewable Energy Source Installations

As Ontarians embrace new and sustainable technologies to become more energy independent at home, Licenced Electrical Contractors have an opportunity to educate homeowners on how to incorporate and install these technologies safely.

One critical component of using small-scale electricity generation systems — like solar panels or wind turbines— is to understand its impact on a consumer's personal electrical system, as well as a utility's distribution grid. Regardless of how a consumer's system is designed, when they are also connected to the utility's grid, additional rules in the OESC are applicable.

One such rule is the utility disconnect prescribed in Rule 84-022 and defined in Rule 84-024.

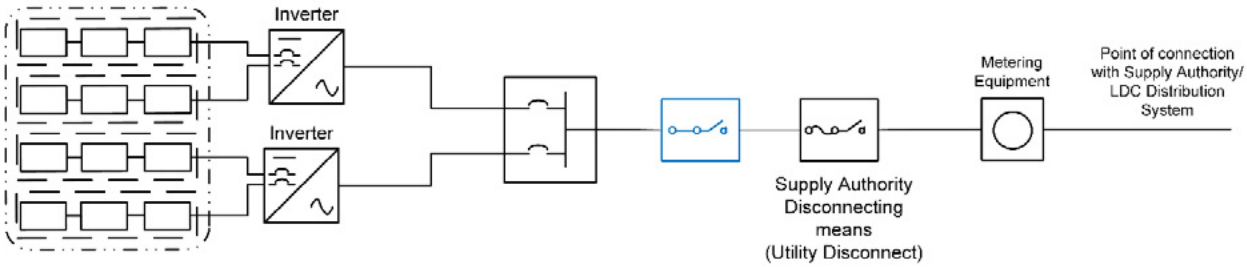
The local utility where your client resides will identify what they need or expect for the single disconnecting means to isolate any or all embedded energy sources from the grid. When the utility or the design specify a fused disconnect switch, the installer will need to include Rule 84-024 2) in the overall layout:

> ***84-024 Disconnecting means — General***
>
> *2) Where a main fusible disconnecting means is used, an isolating switch shall be provided to allow the fuses to be dead during handling.*

As the switch has a source of energy on both sides of the fuses, a disconnecting means will be required to isolate both sources at the point of the fuses to ensure they are safe to handle. The utility side will typically be managed by the switch itself because when it is placed in the open position, this function will isolate that side. For the other side, an additional switch would be required. This switch is required to be adjacent to the fuses as identified in Rule 14-402. At this time, there are no imbedded performance components that meet this requirement.

Utility Disconnect for Renewable Energy Source Installations (Continued)

Some examples of non-compliant installations include isolation points that are not within 9m and sight of the fuse holder, interconnected system equipment (ISE) that isolate the client from the grid so they are able to use the generation and/or stored energy that they have installed to power their loads, or the anti-islanding feature incorporated into grid interactive inverters.



This requirement is also identified in Rules 14-402 and 64-060 8) when there are installations with multiple sources of energy that may not be subject to the application of section 84.