



# Auditor Debrief

October 18, 2024



Electrical Distribution Safety – Web Version

# Disclaimer

The information in this presentation was prepared as discussion points for the auditor meeting. In some cases more information may be required to understand the issue fully, as discussed during the meeting. For more information please contact

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- [Utility.Regulations@electricalsafety.on.ca](mailto:Utility.Regulations@electricalsafety.on.ca).

# AGENDA

1. Review of 2023 Audit Results & Brainstorming
2. ESA Direction – Notable
3. ESA's Sections 7 & 8 Guidelines
4. CSA Standard No.11 – Maintenance
5. Compliance Review Process
6. 2024 Questions & Issues / Auditor Feedback
7. CSA Standard No. 1 & 7 – Changes (1 year)
8. Focus of 2024 Audits
9. Other Information
  - a) Bulletins
  - b) Other Issues –

## Summary of Audit Findings for 2022

### Total of 58 LDC Audit reports (all submitted)

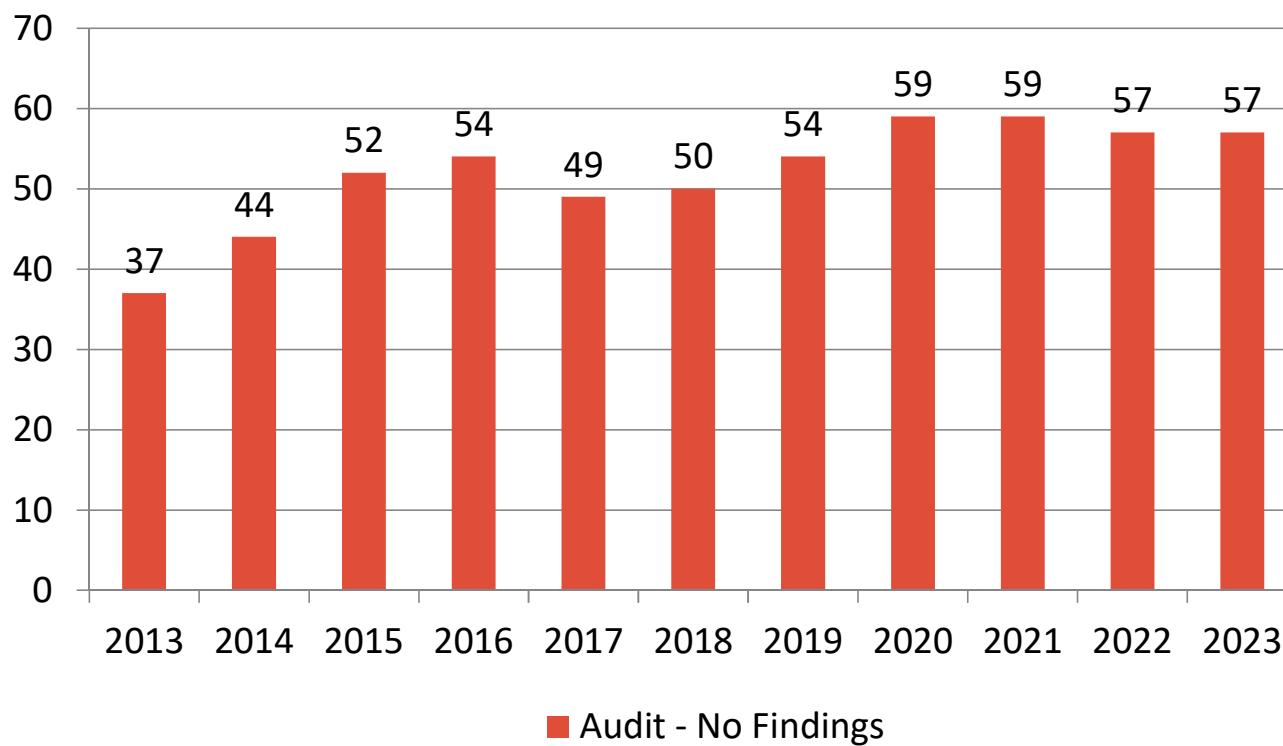
- 20 completed (October 17, 2024).

57 LDCs - Full Compliance ('20-59), ('21-59), ('22-57).

### In the 2023 Audits

- 0 LDC - Non-Compliance findings
- 1 LDC - Needs Improvement findings

## Summary of Audit Findings Life to Date



Switch to %  
in the future  
as the  
number of  
Distributors  
decrease this  
number will  
as well.

# Section 4 - 8 Audit Findings

## Sections 4-8

Nothing appears to be common.

Accurate?

# Brainstorming

ESA is looking to update the Audit Guideline. Will not be done in this calendar year.

Auditor feedback on “in-person” vs “remote” Audits



# **NEW ESA BULLETINS**

Information and Direction



## Notable ESA Direction – Since last year

1. DFN-01-23 IHSA's Guideline for Working Near Overhead Electrical Powerlines and Equipment (**>750V and 1m**)
2. DB-02-24 Subsurface Chamber and Box Covers (**Loads Expected to be Imposed**)
3. DFN-02-24 Energized Equipment Barriers for Temporary Work (**No energized parts or barriers**)

## Notable ESA Direction – Since last year

4. DB-03-24 Meter Base – Grounding and Bonding **(Neutral blocks isolation and grounding)**
5. DFN-03-24 Advanced Metering Infrastructure 2.0 Meter Changeout Program **(All metering bulletins)**
6. DB-04-24 Access to Consumer Service Entrance Equipment **(No locks or restricted access to a consumer's service entrance equipment)**

# Distributor Flash Notices (2023 and 2024)

# DFN-01-23 IHSA's Guideline for Working Near Overhead Electrical Powerlines and Equipment

ESA worked in with IHSA on a guideline which “recommends” a safe minimum distance of 1m for approaching overhead lines below 750V (1000V)

Guideline for Working near Overhead Electrical Powerlines and Equipment on Construction Projects (ihsa.ca)

<https://www.ihsa.ca/PDFs/Products/Id/W802.pdf>

Table 1: Minimum Distances to Powerlines

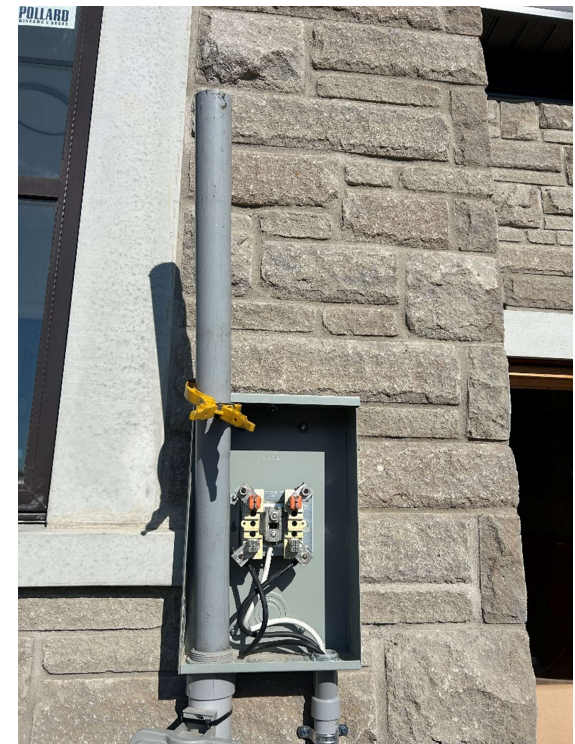
Voltage Rating	Minimum Distance
Less than 750 volts	1 metre (3.3 feet)*
750 to 150,000 volts	3 metres (10 feet)†
More than 150,000 volts, but no more than 250,000 volts	4.5 metres (15 feet)†
More than 250,000 volts	6 metres (20 feet)†

\*Recommendation from the Working Group

†Source: O. Reg. 213/91, s. 188 (2)

## DFN-02-24 Energized Equipment Barriers for Temporary Work

- a. No energized parts or conductors are in the equipment that the customer or Licensed Electrical Contractor (LEC) is expected to be working on or in; **or**
- b. Barriers (e.g. mechanical protection) exist that are suitable for the situation and hazards to which the live parts and conductors are reasonably expected to be exposed.



# DFN-03-24 Advanced Metering Infrastructure 2.0 Meter Changeout Program

## **Relevant Bulletins**

- DB-06-07 Meter Base Failures
- DB-08-09 Working in Meter bases
- DB-06-10 Revenue Meter Location
- DB-01-14 Safety Barrier/  
Supporting & Grounding
- DB-03-19 Electrical Equipment  
Near Combustible Gas
- DB-03-24 Meter Base- Grounding  
and Bonding

## **Issue(s) under OESC:**

ESA should be informed by contacting  
ESA at 1 877 ESA SAFE or  
[esa.cambridge@electricalsafety.on.ca](mailto:esa.cambridge@electricalsafety.on.ca)

Items include, but not limited to:

- Duct Issues
- Meter base pulling away
- Service mast pulling away
- Deteriorated meter base

# Distributor Bulletins (2023 and 2024)



## DB-02-24 Subsurface Chamber and Box Covers

Bulletin supports Ontario government's "Alert" entitled "Loading limitations of utility service covers"

Mobile elevated work platform tipped over when a flush mounted utility service cover broke under the weight of the equipment.

ESA recommends Distributors review their standards and approved equipment

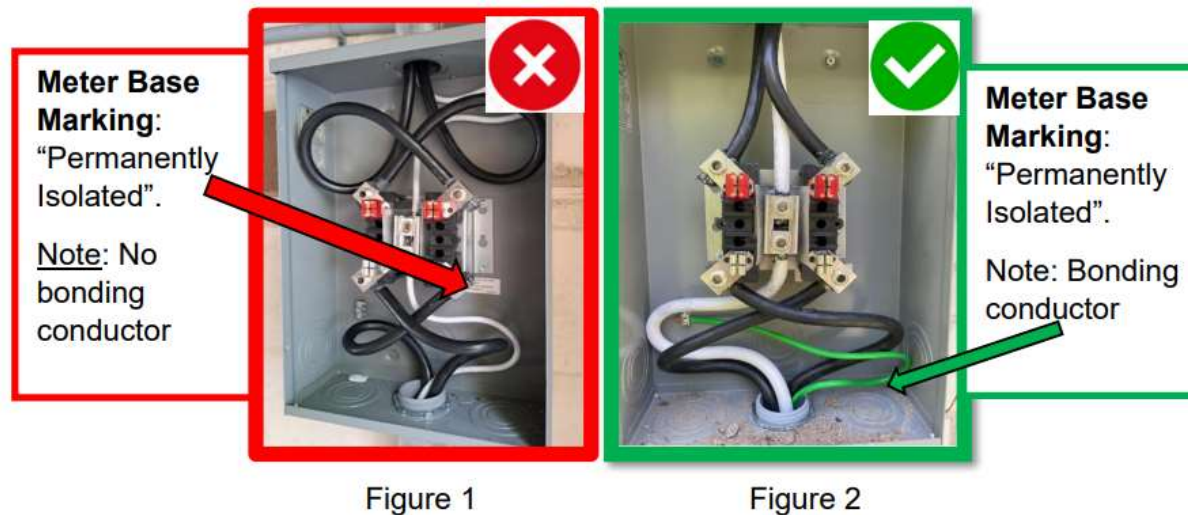


Utility service cover that has been damaged.



## DB-03-24 Meter Base – Grounding and Bonding

ESA recommends informing staff, if an isolated neutral assembly within the meter base & no bonding conductor exists, this is a potential safety hazard. Review of the Conditions of Service for Electrical Distributors that specify acceptable meter base, meter-mounting devices or meter-socket model numbers.



# DB-03-24 Meter Base – Grounding and Bonding

Diagram 1

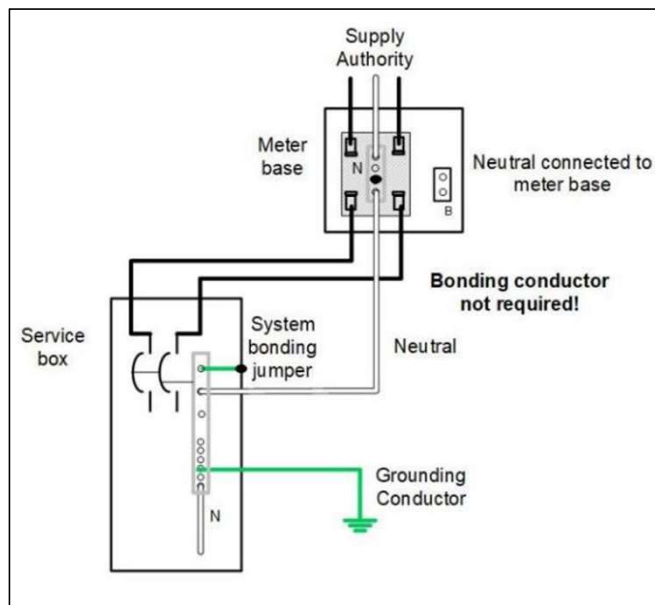


Diagram 2

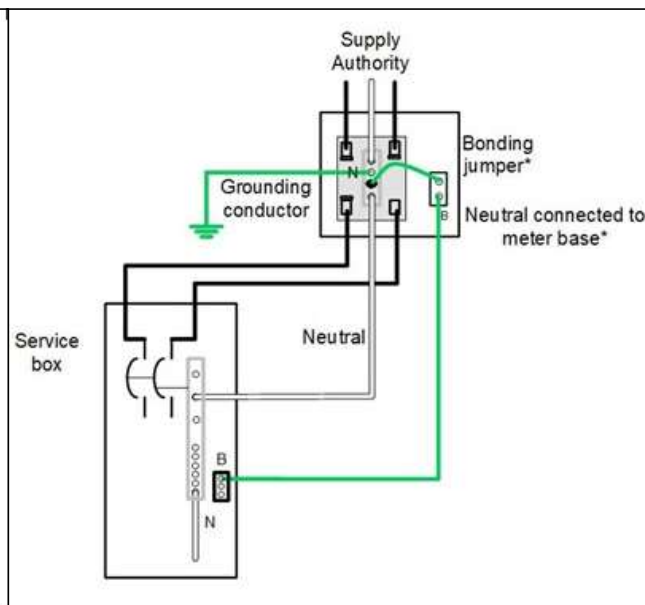
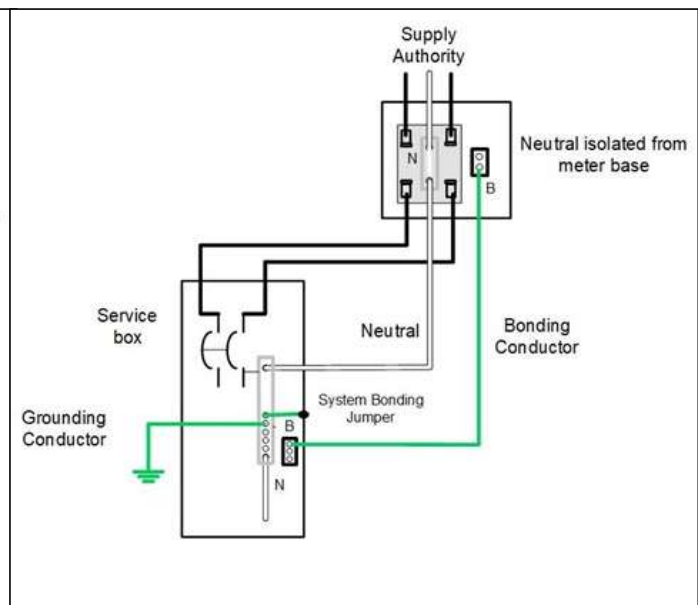


Diagram 3



Only Diagrams 2 & 3 meet the requirements of the OESC, while Diagram 1 is permitted in OESC Bulletin 10-15-7

# DB-03-24 Meter Base – Grounding and Bonding Multi-Gang Meter Base

Diagram 4

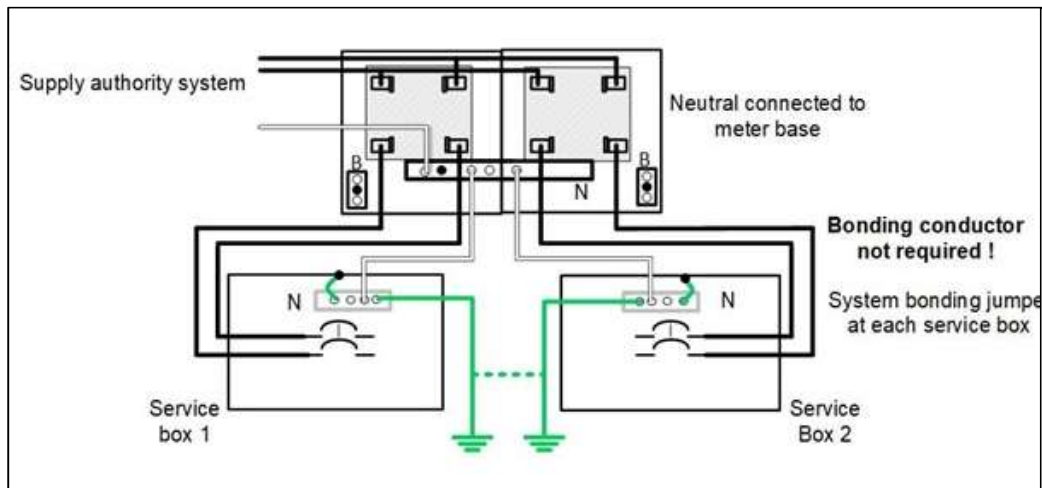
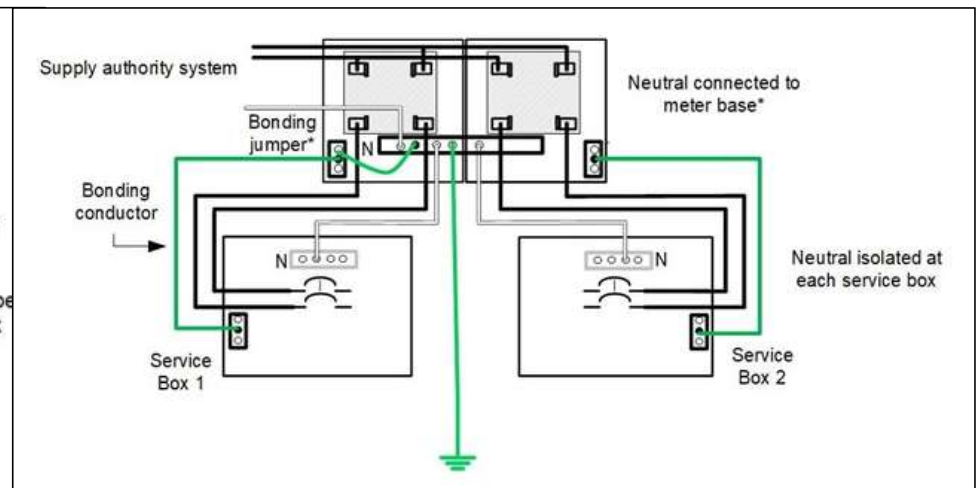


Diagram 5



Only Diagram 5 meets the requirements of the OESC, while Diagram 4 is permitted in OESC Bulletin 10-15-7

# Section 7 & 8 Guideline

# Section 7 & 8 Guideline

**Working Group Completed, not reviewed with UAC until October 24, 2024**

## **Highlights**

1. Guidance on how “Notes” are to be interpreted in the Guideline
2. The following Bulletins were moved into this Guideline
  - Working with Previous Editions of the Overhead and Underground Standards (DB-01-20)
  - Materially Insignificant Work (DB-07-15)
  - Recognized Uses of Certificates of Deviation (DB-02-16) & (DB-11-12)
  - Certificate of Approval Requirements (DB-02-19)
  - Distribution Stations Standard – CAN/CSA-22.3 No. 61936-1 (DB-02-18)
  - In-Field Equipment Refurbishment (DB-01-15)

# Section 7 & 8 Guideline

**Working Group Completed, not reviewed with UAC until October 24, 2024**

## **Highlights**

The following Definitions were added, deleted or modified

- “accounted for”
- “certificate of deviation”
- “installation work”
- “like-for-like replacement”
- “professional engineer”
- “service drop”
- “shall”
- “should”
- “structure”
- “support”
- “supporting structure”
- “where practical”

# Section 7 & 8 Guideline

**Working Group Completed, not reviewed with UAC until October 24, 2024**

## **Highlights**

1. Guidance related to “certificates of deviation” was modified. Reference now includes “certificates of approval” affecting make-ready work
  - Materially Insignificant Work
  - Make-Ready Work – new example added in the Appendix under “General Example”
2. Guidance on “Software-based engineering tools” was added.
3. Transitioning to the latest National Standards or Codes
  - 1 year to transition is considered typical

# Section 7 & 8 Guideline

**Working Group Completed, not reviewed with UAC until October 24, 2024**

## **Highlights**

4. Guidance related to “Construction Verification Programs” was added
  - Construction Verification Program re-fresher training intervals added
  - A maximum interval period in which the program will be either reaffirmed or revised that does not exceed 10 years
  - Additional information regarding “partial” and “final” Certificates
  - Additional information regarding sampling
5. Appendix material was revised
  - Minor changes in the other appendices, typically aligning terms with the defined terms of the Guideline (e.g. “P.Eng” would be converted to “professional engineer”)



# Section 7 & 8 Guideline

**Working Group Completed, not reviewed with UAC until October 24, 2024**

## **Highlights**

6. Guidance related to “Construction Verification Programs” was added
  - Construction Verification Program re-fresher training intervals added
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  - Additional information regarding “partial” and “final” Certificates
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7. Appendix material was revised
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# Section 7 & 8 Guideline

**Working Group Completed, not reviewed with UAC until October 24, 2024**

## **Highlights**

- 8. Revising qualified persons and competent persons throughout the document.
- 9. Inclusion of CVP re-training interval (4.1.5 and Appendix C – 9.3)
- 10. Where conflict exists between Guidelines and Bulletins, the most recent publication shall be used.

# CSA C22.3 No.11 - Maintenance

## CSA STANDARDS - REGULATION 22/04

ESA's preliminary talks with the OEB regarding C22. 3 No.11 are paused. OEB may be reviewing No.11

ESA is approaching UAC October 24, 2024 regarding proceeding with No.11. Likely outcome both DSC Appendix C or C22.3 No.11 acceptable.

The Technical Committees for C22.3 No.1 and No.7 are looking at adding a “General requirements” which will document a reference to CSA C22.3 No. 11 to address maintenance. (Public consultation period is closed)

- All requirements for maintenance in this Standard are to be performed in accordance with CSA C22.3 No. 11.



Building Broadband Faster Act (BBFA)

or

Accelerated Broadband Program (ABP)

# BUILDING BROADBAND FASTER ACT (BBFA)

The Ontario Government is leading an initiative to ensure that all Ontarians have access to Broadband (from wireline) by 2025.

This means that about **700k households (premises)** will need to receive access **by 2025**. Initiative launched March 2021 and the **rules put in place by November 2021.**

Other Related Names:

- Accelerated High-Speed Internet Program (AHSIP) - (previously the Accelerated Broadband Program)
- Up to Speed - Ontario's Broadband and Cellular Action Plan

# Auditor Question(s) / Request(s)

## **1 Request received**

(ESA's Compliance Review Process)

# Auditor Question(s) / Request(s)

## ESA's Compliance Review Process



# ESA Compliance Review Process

Request was about Compliance Reviews on Concerns and Maintenance

- ESA will address the concern with the Distributor
- If it appears applicable ESA will also ask for maintenance records

# ESA Compliance Review Process





# ESA Compliance Review Process



# Auditor Question(s) / Request(s)

## Guideline Review Update

# Proposed schedule – Order in which to address guidelines **(Note 1)**

- 1) Year 1 - Guideline for Excavation in the Vicinity of Utility Lines (Section 10)
- 2) Year 1 - Guideline for Third Party Attachments (Section 7 & 8)
- 3) Year 2 - Technical Guideline (Section 7)
- 4) Year 2 - Technical Guideline (Section 8)
- 5) Year 3 - Technical Guideline (Section 6)

**Note: Order may be changed as needed to address new requirements, stakeholder feedback, etc (e.g. Regulation amendments).**

# Proposed schedule – Order in which to address guidelines

- 6) Year 4 - Guideline for Change of Ownership (Section 3)
- 7) Year 4 - Guideline for Proximity to Distribution Lines (Section 10)
- 8) Year 4 - Guideline for Disconnecting Unused Lines (Section 11)
  
- 9) Year 5 - Guideline for Reporting of Serious Electrical Incidents (Section 12)
- 10) Year 5 - Guideline for Audit (Section 13)
- 11) Year 5 - Guideline for Declaration of Compliance (Section 14)



C22.3 No.1 & 7

Highlights of 2025 Editions

# Overhead Systems

## C22.3 No. 1



# Overhead System

## ΔGMT, Subsection 4.1 and Annex J

Overhead systems shall be designed, constructed, and make allowance for future climate projections to provide for the intended reliability, resiliency, and safety

**For assets with a projected service life up to 60 years, projected future values corresponding to +2.0°C GW, are indicated. For assets with a longer service or design life, future values corresponding to +2.5°C GW are recommended.**

Distributors will have use new tables and a min-max approach, where they will choose worst case conditions between current and future climate. Example, wind and snow loading.

# Overhead System

## 4.1.2 Maintenance

Unless stated otherwise, all requirements in this Standard are to be maintained for the life of the installation according to **CSA C22.3 No. 11**

# Overhead System

## **5.7.6.2 Separations from flammable filled equipment (e.g. transformers)**

Flammable Dielectric liquid-filled electrical supply equipment shall be located with a minimum separation to buildings of

- (a) 3m for any combustible surfaces of a building;
- (b) 6m for any door or window that opens; and
- (c) 6m for any ventilation inlet or outlet.

Separation shall be the shortest line-of-sight distance for parts of the building above the level of the equipment and the horizontal distance to parts of the building below the level of the equipment.

Transformers equipped with a pressure relief device may be installed as per clause 5.7.6.1 where:

- a) The transformer is protected by a current limiting fuse; or
- b) the available fault current is below 2,500A symmetrical RMS

# Overhead System

## Other

1. Now using 1000V instead of 750V.
  - Not a material change, aligns with CEC Part I
2. Many changes affect only Transmission

# Underground Systems

## C22.3 No. 7

# Underground System

## 4.1.2 Maintenance

All requirements for maintenance in this Standard are to be performed in accordance with **CSA C22.3 No. 11**.

# Underground System

## 9.6 Pressure Relief

Subsurface chambers shall provide relief of high pressure gas, generated as a result of a fault.

**Relief shall be controlled and not cause the cover to become a projectile.**

# Underground System

## 9.9 Ventilation

Transformers in subsurface chambers

- **Gratings/louvers shall be used in public access areas to prevent debris**

Other equipment in subsurface chambers, subsurface boxes

- Equipment that can produce explosive gases under normal use, shall be ventilated to dissipate gases and to not exceed operating temperature limits



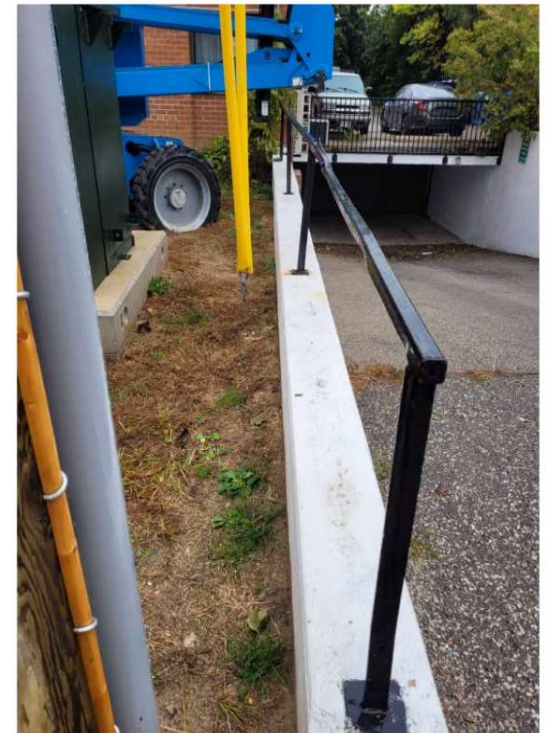
# Underground System

## 15.6 Grounding Conductors

### 15.6.2.4 Metallic objects and supply equipment

Where a non-communication **metallic object** (e.g. **guy anchor, fence and enclosure**) or an object that is not a barrier for pad-mounted supply equipment exists within 3m of pad-mounted supply equipment **touch potentials shall be considered**. Where unsafe touch potentials could be present, objects within 3m of the pad-mounted supply equipment should be

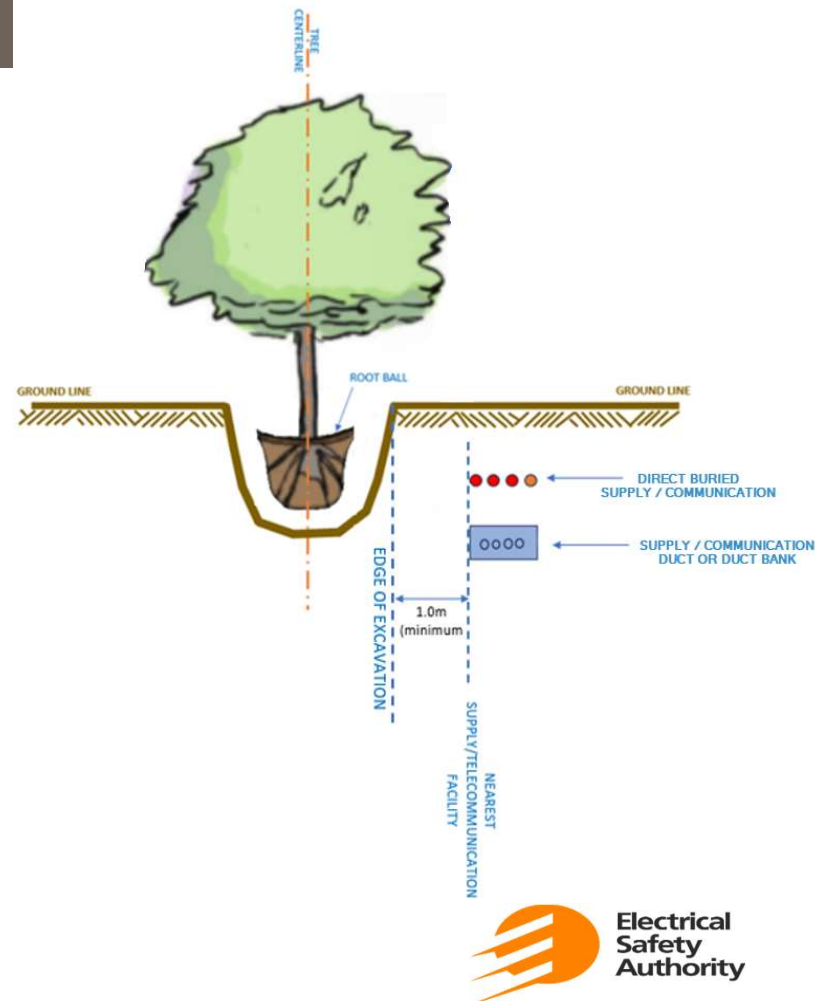
- a) made of non-metallic materials; or
- b) bonded to the pad-mounted supply equipment and gradient control installed for the object.



# Underground System

## 4.2.2 Note: Tree Planting, Root Balls

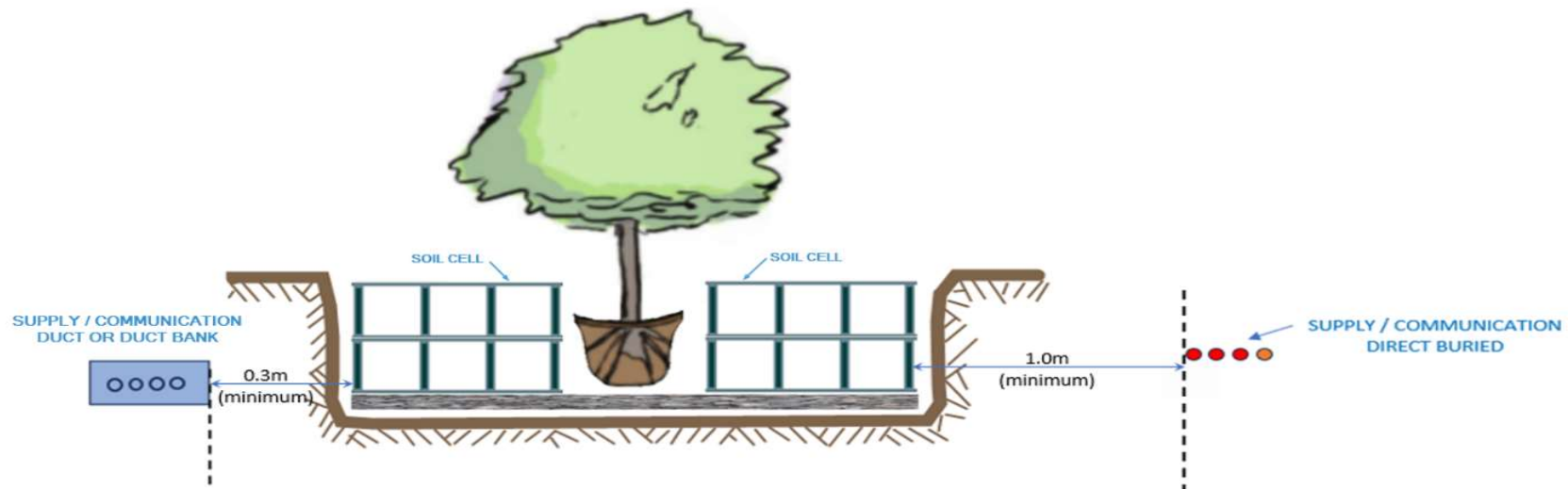
A minimum separation for tree planting from facilities **should** be at least 1 m from the expected edge of the excavation needed to plant the tree with its root ball



# Underground System

## Soil Cells

Separation of Soil Cells added to the Standard



# Underground System

## Other

1. Now using 1000V instead of 750V.
  - Not a material change, aligns with CEC Part I
2. Consideration should be given to locating supply installation outside of flood hazard zone(s), with a **minimum return period of 1-in-100 year event.**

Table 1 – Likelihood of Flooding Occurrence

Return Period	Percent Chance in 15 Years	Percent Chance in 30 Years	Percent Chance in 50 Years
5 Year	96.5%	99.9%	100%
10 Year	79.4%	95.8%	99.5%
20 Year	53.7%	78.5%	92.3%
50 Year	26.1%	45.5%	63.6%
100 Year	14.0%	26.0%	39.5%
200 Year	7.2%	14.0%	22.2%
500 Year	3.0%	5.8%	9.5%

# Focus of 2023 Audits

ESA is looking for the Auditors to focus on the following items in the next Audit Year.

- Energized Temporary Distribution Work, particularly around the demarcation point as outlined in the Flash Notice.
- Maintenance

# Other Issues

1. Configurations of Concern – On-going
2. Legislative Review Panel, Ontario's Broadband Plan & Building Transit Faster Act - On-going
3. COVID-19 - No changes(Auditor & LDC decides on remote audits)
4. Section 10-11 Guidelines - Review will begin in the Q1 of 2025
5. CSA (O/H & U/G) standards - On-track (2022 amendment, 2025 new versions)
6. Load Serving Entities / DSOs - On-going (No new news)



# Questions

Any Questions?