



Technical Guideline for

Section 8. Inspection and Approval of Construction

Ontario Regulation 22/04

Electrical Distribution Safety

January 12, 2005

Legal Disclaimer

This document contains GUIDELINES ONLY to assist members of the industry in interpreting Ontario Regulation 22/04 - Electrical Distribution Safety -made under subsection 113(1) of Part VIII of the Electricity Act, 1998. These guidelines do not have the force of law. Where there is a conflict between these guidelines and any legislation or regulation which may apply, the relevant law prevails.

Retention periods stated in guidelines set out the minimum period for which referenced documents are to be retained. Each distributor needs to make its own assessment of the appropriate retention period for specific documents based on its assessment of risk factors and potential liability.

1.0 General

1.1 Purpose

The purpose of this Guideline is to clarify and interpret the requirements outlined in various sections of Regulation 22/04 “Electrical Distribution Safety”. The sections of the Regulation outlined in this Guideline include:

- Section 6.0, “Approval of electrical equipment” – the requirements *distributors* are to follow **for approving equipment for use on new construction and on repairs to existing distribution systems**
- Section 7.0, “Approval of plans, drawings and specifications for installation work” – the requirements *distributors* are to follow **when designing installations that form part of their distribution systems.**
- Section 8.0, “Inspection and approval of construction” – the requirements *distributors* are to follow **prior to putting any new construction or repairs to distribution systems into use.**

This Guideline references sections 4, 5, 6, 7, 8, and 9 of the Regulation, as they relate to the distributor’s ability to meet the requirements of each section. This Guideline along with the Regulation provides a complete explanation of the requirements for the design, construction and equipment certification of electrical distribution systems.

As a condition to using its distribution systems, each distributor will need to engage an auditor on an annual basis to prepare an audit report and demonstrate compliance with sections 4, 5, 6, 7 and 8 of the Regulation. The checklists included in the appendices of this Guideline will assist in highlighting those areas where documentation will need to be available for audit purposes.

This Guideline along with the Regulation and other appropriate standards form the basis on which the ESA will assess the safety of the electrical distribution installations within the Province of Ontario.

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1.3 Definitions

- 1.3.1 **“ancillary equipment”** means electrical installations (not located in buildings, or rooms in buildings, used as offices, washrooms, cafeterias, warehouses, garages, machine shops and recreational facilities) that are operating at 750 Volts or below to support but are not a direct part of a *distribution system* such as sump pumps, SCADA equipment, strip heating, etc.;
- 1.3.2 **“approved equipment”** means equipment that meet rule 2-024 of the Electrical Safety Code or that has been purchased, tested and inspected in accordance with industry standards, or equipment specification, or *Good Utility Practice* and procedures of the distributor and an assurance of safety of the equipment equivalent to rule 2-024 of the Electrical Safety Code is provided;
- 1.3.3 **“Authority”** means the Electrical Safety Authority;
- 1.3.4 **“authorized person”** means a *competent person* authorized by a distributor to have access to areas containing, or structures supporting, energized apparatus or conductors. O. Reg.22/04;
- 1.3.5 **“barriered”** means separated by clearances, burial, separations, spacings, insulation, fences, railings, enclosures, structures and other physical barriers, signage, markers or any combination of the above (Reg.22/04);
- 1.3.6 **“Certificate”** means a certificate issued by a *professional engineer*, ESA or a *qualified person* identified in the distributor’s construction verification program, that the construction meets the safety standards set out in Section 4 of the Regulation;
- 1.3.7 **“certificate of approval”** means the certificate issued by a professional engineer or ESA confirming that a plan or Standard Design meets the safety standards set out in section 4 of the Regulation and provided to the distributor;
- 1.3.8 **“certification organization”** means an organization accredited by the Standards Council of Canada;
- 1.3.9 **“competent person”** means a person who,
 - (a) is qualified because of knowledge, training and experience,
 - (i) to perform specific work, or

- (ii) to organize work and its performance,
- (b) has knowledge of any potential or actual danger to health or safety in the workplace in relation to the work, and
- (c) is familiar with section 113 of the Act and the regulations made under it, and with the *Occupational Health and Safety Act* and the regulations made under that Act, that apply to the work. O. Reg.22/04;
- 1.3.10 “construction verification”** means the inspection, approval and documentation of any new construction or repairs to *distribution systems* including replacements of part or portion of a distribution system, *like-for-like replacements*, and *legacy construction* replacement with respect to the safety standards set out in Section 4 of the Regulation;
- 1.3.11 “contractor”** means any person who performs work on electrical equipment or an electrical installation. O. Reg.22/04;
- 1.3.12 “disconnecting means”** means a device, group of devices or other means whereby the conductors of a circuit can be disconnected from their source of supply. O. Reg.22/04;
- 1.3.13 “distribution line” or “line”** means an electricity distribution line, transformers, plant or equipment used for conveying electricity at voltages of 50,000 volts or less (Reg.22/04);
- 1.3.14 “distribution station”** means an enclosed assemblage of equipment, including but not limited to switches, circuit breakers, buses and transformers, through which electrical energy is passed for the purpose of transforming one primary voltage to another primary voltage. O. Reg.22/04;
- 1.3.15 “distribution system”** means a system for distributing electricity, and includes any structures equipment or other things used by a *distributor* for that purpose;
- 1.3.16 “distributor”** means a person who owns or operates a *distribution system* in the service territory defined in the electricity distribution license issued by the Ontario Energy Board (OEB);
- 1.3.17 “effectively grounded”** means permanently connected to earth through a ground connection of sufficiently low impedance and having sufficient current-carrying capacity to prevent the building up of voltages that may result in undue hazard to persons. O. Reg.22/04;
- 1.3.18 “electrical installation”** means the installation, repair, replacement, alteration or extension of any wiring or electrical equipment that forms part of a distribution system (Reg.22/04);
- 1.3.19 “ESC”** means the Electrical Safety Code referred to in Ontario Regulation 164/99;
- 1.3.20 “equipment” or “electrical equipment”** means any apparatus, device, material used for the distribution of electricity, including

materials that are non-electric in origin (*refer to the Regulation for the complete definition of “electrical equipment”*(Reg.22/04);

- 1.3.21 “field evaluation agency”** means an organization accredited by the Standards Council of Canada and recognized by the Electrical Safety Authority (ESA) as being qualified to carry out a safety evaluation of electrical equipment that is limited in scope to essential safety considerations;
- 1.3.22 “Good Utility Practice”** means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry in North America during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good practices, reliability, safety and expedition. Good utility practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in North America (DSC);
- 1.3.23 “hazard”** means a potential for injury to a person or property;
- 1.3.24 “legacy construction”** means existing construction built in accordance with *Good Utility Practice*, that does not meet current Standard Designs;
- 1.3.25 “like-for-like replacement”** means the replacement of one piece of electrical equipment (one assembly) under all conditions, or a part or portion of a line under emergency conditions, on an existing distribution system that maintains as a minimum the characteristics and functionalities of the original installation;
- 1.3.26 “line upgrade”** means the replacement or significant improvement of an existing *distribution line*;
- 1.3.27 “live”** means electrically connected to a source of voltage difference or electrically charged so as to have a voltage different from that of the earth O. Reg.22/04;
- 1.3.28 “no undue hazard”** for the purpose of approving equipment for use in the distribution system where indicated in this Guideline means that:
- energized parts of the equipment are **insulated or barriered**,
 - the equipment has sufficient **mechanical strength** to withstand the loads imposed on it by the intended application in the distribution system,
 - the equipment has **grounding provision** so that it can be *effectively grounded* where required,
 - the equipment design and construction has no unprotected **sharp edges**, or dangerous **moving parts**,

- the equipment electrical characteristics and protection minimize the possibility of **excessive temperature, fire or explosion** under expected operation conditions;
- 1.3.29 “no undue hazard”** for the purpose of construction verification of an *electrical installation* where indicated in this Guideline means that:
- metal parts that are not intended to be energized and that are accessible to unauthorized persons are adequately grounded,
 - *live* parts are adequately insulated or *barriered*,
 - the installation meets the minimum CSA clearances from buildings, signs and ground or barriers are installed to protect,
 - the structure has adequate strength where adequate means in accordance with *Good Utility Practice*;
- 1.3.30 “ownership demarcation point”** means the point,
- (a) at which the distributor’s ownership of a distribution system, including connection assets, ends at the customer, and
 - (b) that is not located beyond,
 - i. the first set of terminals located on or in any building, or
 - ii. an electrical room or *vault* in a building where the electrical room or *vault* is of tamperproof construction, bears a sign to indicate that it is an electrical room or *vault* and is accessible only to *authorized persons* (Reg.22/04);
- 1.3.31 “plan”** means the drawings and instructions that are prepared for the construction of new or modified *distribution system* that have been reviewed and approved by a *professional engineer* or ESA;
- 1.3.32 “primary distribution line”** means a distribution line conveying electricity at more than 750 volts but not more than 50,000 volts phase to phase; O. Reg.22/04
- 1.3.33 “professional engineer”** means a person who holds a license or temporary license under the Professional Engineers Act (Reg. 22/04);
- 1.3.34 “putting a system into use”** means making an *electrical installation* forming part of the electrical *distribution system* available for service;
- 1.3.35 “qualified person”** means a person identified in a *construction verification* program developed by the distributor and approved by ESA for the purpose of inspection and approval of construction;
- 1.3.36 “record of inspection”** means a record prepared by a *professional engineer*, ESA, or a *qualified person* identified in the distributor’s *construction verification* program, detailing the inspection of a constructed or repaired portion of an electrical distribution system

- with respect to the safety standards set out in section 4 of the Regulation;
- 1.3.37 “Regulation”** means the Ontario Regulation 22/04 – Electrical Distribution Safety;
- 1.3.38 “safety standards”** means the safety standards set out in section 4 of the Regulation;
- 1.3.39 “secondary distribution line”** means an electricity distribution line conveying electricity at 750 volts or less phase to phase. O. Reg.22/04;
- 1.3.40 “Standard Designs”** means the standards such as standard design drawings, standard design specifications, technical specifications, and construction standards that have been reviewed and approved by a *professional engineer* or ESA for use by a *distributor* and that the *distributor* uses on an ongoing basis for the construction, operation, and maintenance of its distribution system;
- 1.3.41 “Utility Advisory Council (UAC)”** means an advisory body formed to provide advice to ESA specific to the Electrical Distribution Safety Regulation governing the distribution of electricity in Ontario;
- 1.3.42 “vault”** means an isolated enclosure, either above or below ground, with fire-resistant walls, ceilings and floors in which transformers and other *electrical equipment* are housed. O. Reg. 22/04, s. 1.
- 1.3.43 “work instruction”** means the assembly of *Standard Designs* into drawings and instructions prepared by a *competent person* in accordance with the distributor’s job planning process used for the installation of new or modified *electrical equipment* that forms part of a *distribution system*.

2.0 Construction Verification – Inspection and approval of construction

The purpose of this section of the Guideline is to clarify and interpret the requirements outlined in **section 8.0 of Regulation 22/04** “Electrical Distribution Safety”. Section 8.0, “Inspection and approval of construction” contains the requirements *distributors are to follow prior to putting any new construction or repairs to distribution systems into use.*

2.1 General

2.1.1 What is required by Section 8 of Regulation 22/04?

After February 11, 2005, the date section 8 of the *Regulation* comes into effect, before putting any new construction or repairs of *distribution systems* into use, the *distributor* is to:

- ensure the construction is inspected;
- confirm that only *approved equipment* was utilized in the construction;
- prepare a *record of inspection*; and
- complete a *Certificate*.

2.1.2 What is meant by “putting a *distribution system* into use”?

Putting a system into use means after completion of the work or portion of the work to construct, repair or modify an electrical installation forming part of the electrical *distribution system*, it is placed back into full service or is made available for service.

For new construction the system is available for service when the construction reaches a stage where it can be used to distribute electrical energy. For modifications and repairs to existing systems the system is available for service when it can be returned to normal use.

Examples:

Live line work: The *line* remains energized while performing the construction work. Certification that the installation meets the *safety standards* will be required prior to removing the work site protection.

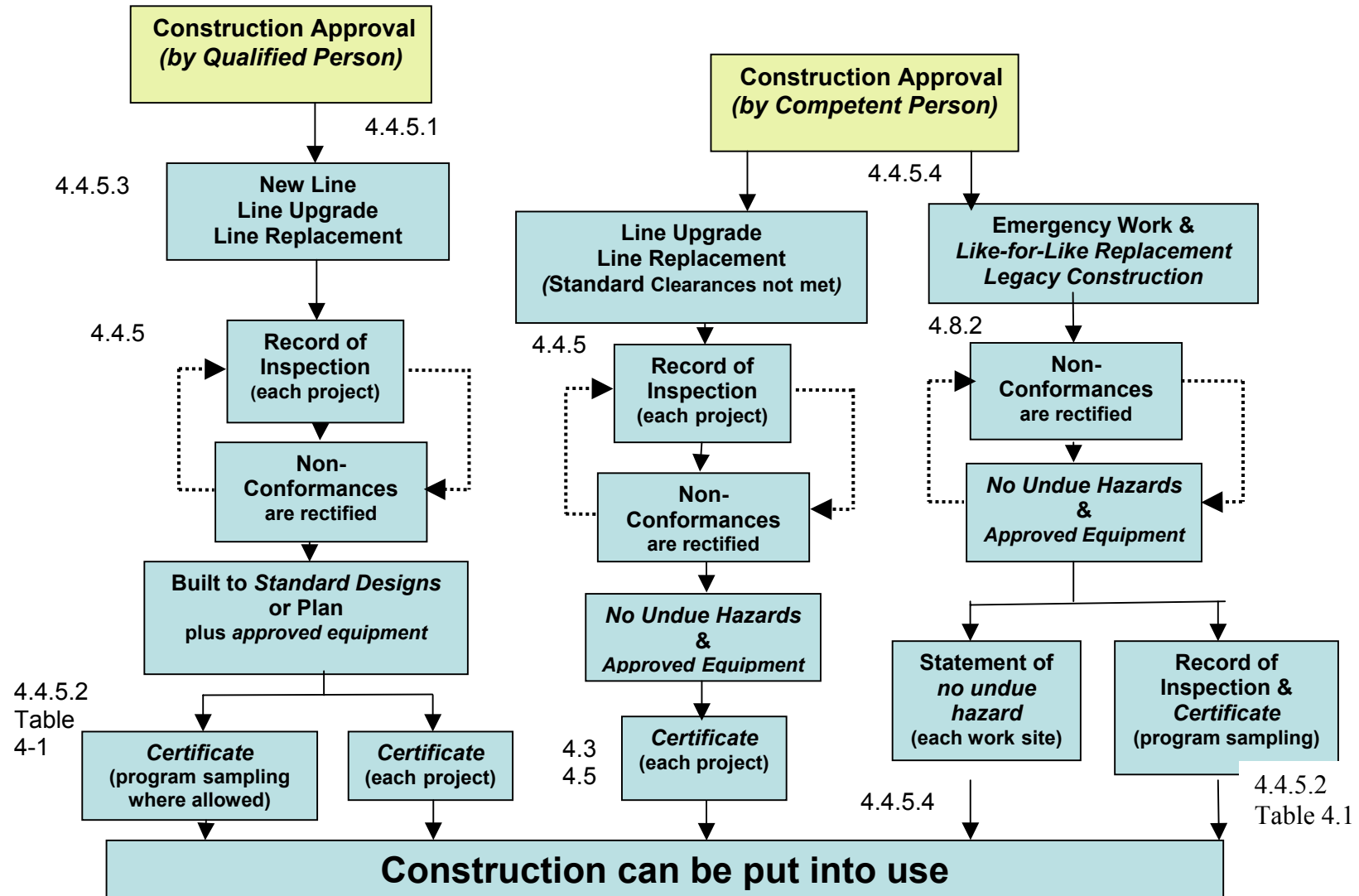
Energizing part of a project: For projects such as a voltage conversion or a *line upgrade* in which equipment is connected to a new primary circuit at various stages, a partial inspection and certification is required prior to each portion being made available for service.

Back up Power Supply: A new *line* constructed for a back up supply may or may not be energized immediately. The *line* can be inspected when the construction is finished and can be made available for service once the *Certificate* is completed.

2.1.3 Flow Chart for Section 8 of Regulation 22/04

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4.1.3 Construction Verification and Approval



2.1.4 What are the *safety standards* required by the *Regulation*?

The *safety standards* are outlined in section 4 of the *Regulation*. A summary of these requirements is included in section 3.1.5 of this Guideline.

2.1.5 For the purpose of the *Regulation* who can carry out an inspection of construction?

The *Regulation* allows three options for the inspections of construction:

- by a *professional engineer*; or
- by a *qualified person*; or
- by ESA, at the request of the *distributor*.

2.2 Inspection by a *professional engineer***2.2.1 What does a *professional engineer* need to do to complete an inspection?**

To complete an inspection of the distribution construction a *professional engineer* is required to:

- carry out the inspection;
- ensure that *approved equipment* was utilized for the construction; and
- prepare a *record of inspection*.

2.2.2 Completing the inspection

The *professional engineer* will visit the construction site and prepare a record of the inspection.

Where a *professional engineer* determines that:

- the installation is not in accordance with the *plan* or *Standard Designs*; or
- equipment utilized for the installation is not approved; or
- the installation does not meet the *safety standards*

the deficiencies should be noted in the *record of inspection* and provided to the *distributor* to initiate the required corrective actions. Once the *professional engineer* is satisfied that the corrective actions have been taken and the construction meets the *safety standards*, the *professional engineer* can finalize the *record of inspection*.

2.2.3 What constitutes a *record of inspection*?

A *record of inspection* is to include sufficient description to identify the work and equipment inspected.

A typical *record of inspection* can be the construction drawings with any compliance or deficiencies with respect to the *safety standards* noted, dated, and initialed by the *professional engineer*.

2.3 Certificate issued by a professional engineer

Once satisfied that the construction and equipment inspected meets the *safety standards* the *professional engineer* can prepare the *Certificate* including:

- name and signature of the inspecting *professional engineer*;
- name of the *distributor* that owns the system;
- confirmation that the construction meets the *safety standards*; and
- date of certification.

The *Certificate* can be a separate document or can be a stamp and signature added to the *record of inspection* and/or construction drawings (Sample *Certificates* in Appendix A).

2.4 Inspection under a construction verification program

2.4.1 General

The *Regulation* allows *qualified persons* to inspect construction as part of the *construction verification* program developed by the *distributor* and approved by ESA. The purpose of the *construction verification* program is to outline the process that the *distributor* will use to confirm that the construction completed is in accordance with the *plans, work instructions* or *Standard Designs* and that the *equipment* utilized for the construction is approved by the *distributor*.

2.4.2 What constitutes a *construction verification* program?

A *construction verification* program as a minimum entails:

- identification of *qualified and competent persons*;
- minimum standards for conducting an inspection and completing the *record of inspection*; and
- process to complete the *Certificate*.

The process and documentation of inspection and certification may vary depending on the type of construction completed. Please see appendix C for a sample generic *construction verification* program.

2.4.3 Approval of *construction verification* program by ESA:

The *distributor's construction verification* program requires approval by ESA. The following information is to be provided to ESA for approval:

- Name of the *distributor* and contact person,
- Overview of the verification program outlining:
 - Listing of persons or positions qualified for inspection and the position qualifications. An up-to-date list of qualified persons should be readily available upon request.
 - Copy of instructions outlining the verification program for planned and emergency construction, the requirements for an inspection report and *Certificate*.
 - Identification under what conditions sampling will be used for inspection, if at all
 - Sample *Certificate* or method of certification.

2.4.4 How does a *distributor* determine *qualified persons* for its *construction verification* program?

Qualified persons for the purpose of *construction verification* are those persons who are qualified because of knowledge, training, and experience with the specific *plans, work instructions* or applications of *Standard Designs* utilized by the *distributor* to construct its *distribution system*.

Positions within the *distributor's* organization that require qualifications appropriate for inspection are suitable for identification in the *construction verification* program. Positions such as Design Technicians, Crew Leaders, Superintendents, Inspectors, etc. are examples of positions qualified for the inspection and approval of construction.

The *distributor* may specify within its *construction verification* program the work that various positions are qualified to inspect and approve under the *Regulation*. For instance, it may be appropriate to qualify a Superintendent to inspect and approve all construction while limiting a Service Technician to inspect service entrances and meter installations.

2.4.5 Completing a *Record of inspection*

Regulation 22/04 requires the inspection of all construction on the *distribution system* including repairs both planned and emergency. The following sections provide the *distributor* with options for completing *records of inspection*.

Regardless of the method chosen to complete the *record of inspection*, the *distributor* is to develop and maintain standard processes and documentation to record the relevant information. The processes and

documentation are to provide sufficient details to confirm the compliance of the construction to the *plan*, *work instruction* or *Standard Designs* and to confirm that *approved equipment* was used.

2.4.5.1 What are the options available for inspecting construction and preparing a record of inspection?

The options available to the *distributor* for the inspection of construction are outlined in Table 4 – 1.

2.4.5.2 When a sampling program is used for inspection what is required?

When sampling is included in the *construction verification* program the *distributor* is required to include in its program the following;

- All construction covered by a sampling program shall be performed and verified by *competent persons*, having received training associated with safe conditions as they apply to the *Regulation*;
- Individual *Certificates* are not required for work inspected as part of a sampling program;
- The *distributor* is satisfied that the work sites are left in a safe condition upon completion of the work;
- Safe condition means that the site presents *no undue hazard*;
- *Distributor* will inspect a sample of the sites and *records of inspection* prepared to demonstrate that the safety requirements of the *Regulation* have been met;
- a *Certificate* will be prepared documenting all the sites covered, not just the sites that were sampled.

Examples of where sampling could be utilized include programs such as; pole replacement programs, replacement of faulty components, installation of secondary services, etc. The *distributor* shall provide in their *construction verification* program, submitted to ESA, the minimum sampling ratios of work where sampling is proposed.

Type of Work	Work Documentation	Record of Inspection	Certificate
New Construction Upgrade	<i>Plan</i> <i>Work instruction</i> <i>Standard Designs</i>	<i>Qualified person</i> inspects in accordance with the <i>distributor's</i> schedule which can include sampling and notes compliance with <i>plan, work instruction or Standard Designs</i> and use of <i>approved equipment</i>	<i>Certificate</i> issued for each project or work type (where sampling is allowed)
Planned replacement (other than for <i>legacy construction</i>)	<i>Standard Designs</i> <i>Work instruction</i> <i>Like-for-like</i>	<i>Qualified person</i> inspects each site and records compliance with <i>Standard Designs</i> or <i>work instructions</i> and use of <i>approved equipment</i> Or <i>Competent person</i> inspects each site (or sampling) to confirm safe condition upon work completion. Completion of work is recorded.	For sites inspected by <i>qualified person</i> - <i>Certificate</i> issued or For sites inspected by <i>competent person</i> - sample inspection by a <i>competent person</i> for quality assurance and <i>Certificate</i> issued for all sites.
Emergency and <i>legacy construction</i> replacement	<i>Like-for-like</i> <i>Part or portion</i> <i>Legacy construction</i>	For emergency work - <i>competent person</i> inspects each site to confirm safe condition upon work completion. Confirmation of safe condition recorded in specified location or For emergency work - <i>competent person</i> inspects each site to confirm safe condition upon work completion. Completion of work recorded. For legacy construction replacement - <i>competent person</i> inspects each site and confirms safe condition upon work completion.	For emergency work where the confirmation of safe condition has been recorded in a specified location, the confirmation of inspection of safe condition forms the <i>Certificate</i> . or For emergency work where only the completion of work has been recorded - sample inspection to verify quality assurance and <i>Certificate</i> issued for all sites. For <i>legacy construction</i> replacement - <i>Certificate</i> issued for each project.

Table 4 - 1

2.4.5.3 When a *qualified or competent(as applicable) person is completing an inspection what is required?*

When a *qualified person* is completing an inspection, to meet the requirements of the *construction verification* program the following components are to be included in the *record of inspection*:

Equipment Compliance: The inspection is to confirm that the *equipment* used for the construction is approved. For instance, where the bill of material for the construction inspected is solely comprised of “*approved equipment*”, the *equipment* can be deemed to meet the *Regulation*.

Where the *electrical equipment* does not comply with a code or standard under a rule of the *distributor*, the *equipment* is to meet any of the standards for approval of equipment set out in Rule 2-024 of the Ontario Electric Safety Code. (See Equipment Approval Section 2.0)

Construction Compliance: For planned work, the inspection is to confirm that the construction was completed in accordance with the *plan, work instruction* or with the *Standard Designs* for the work.

The *qualified person* may confirm construction compliance by identifying those installations inspected that were constructed in accordance with the *plan, work instruction* or *Standard Designs*. The use of “as constructed drawings” may be appropriate for this purpose. In addition to changes in dimensions, the *qualified person* should note any alternative *Standard Designs* that were used for the construction to suit unforeseen field conditions.

Where a *qualified person* determines that portions of the construction are not in accordance with the associated *plan, work instruction* or *Standard Designs* or that an *undue hazard* exists, the *qualified person* should note the non-compliance in the *record of inspection* and advise the *distributor*. The *distributor’s construction verification* program is to outline a process for resolving non-compliance and could include such items as reconstruction, modifications, creation of new *Standard Designs*, a *plan* approval by a *professional engineer*, etc.

Once the non-compliances have been rectified, a *qualified person* can prepare a *Certificate*.

2.4.5.4 What is required when a *competent person* is confirming that the site is left in a safe condition?

When a *competent person* is confirming that a site is left in a safe condition, to meet the requirements of the *construction verification* program the following is required:

- The *competent person* has inspected the site to confirm that the site presents *no undue hazards*.
- Indication of work completion or indication that the site is left in a safe condition is to be provided on the documentation as outlined in the *distributor's construction verification* program (i.e. on a work order, trouble report, time sheet, site drawing, *Standard Designs*, work log, dispatch log, etc.) and
- the documentation forms part of the *distributor's* normal workflow and document retention program.

2.4.5.5 How is “work in progress” to be inspected?

In instances where portions of a project are being put into service or require inspection prior to completion of the project (such as the inspection of underground cables prior to backfilling), the *distributor* may follow a progressive inspection approval process.

Where the *distributor* follows a progressive inspection approval process, the *distributor* is to secure a series of *records of inspection* and partial *Certificates* coupled with a final *Certificate* at the end of the project for any work not previously certified.

2.4.5.6 What are the requirements for the inspection of third party construction on the *distribution system*?

Third party construction falls into two classifications:

- construction that will form part of the *distribution system* such as new *lines* and
- work added onto a *distribution system* such as communication equipment.

For third party construction such as new *lines* that will form part of the *distribution system* the *distributor* should ensure that the construction has followed the approved *plan* and that any variation is noted for resolution by the constructor. A *Certificate* is to be issued prior to placing the system into use.

Third party attachments such as telecommunication equipment, street lighting, decorations, signs etc. are not part of the *distribution system*. However, to the extent they may affect the safety of the *distribution system* they may be indirectly subject to the *Regulation*. In authorizing third party attachments, the *distributor* is to ensure that the proposed attachments to its *distribution systems* meet the safety requirements of the *Regulation*.

For third party construction, the *distributor* should ensure that the construction is in compliance to its *Standard Designs* or to an approved *plan*. The *distributor* could inspect the site using a *qualified person* or require assurance of construction compliance to *Standard Designs* or to approved *plan* from the third party. Any variation from *Standard Designs* or *plan* should be noted for resolution by the owner in the *record of inspection*.

Once the inspection record has been prepared and all non-compliances have been rectified the *distributor* can prepare and issue a *Certificate*(*). The purpose of the *Certificate* is to ensure that there is no negative impact on the *distribution system* by the third party installation and does not require the approval of the third party's equipment by the *distributor*. In these installations, it is likely that the construction will be placed into service by the third party prior to a *Certificate* being issued.

When a distributor determines during the course of its operation that a third party attachment does not comply to its *Standard Designs* or approved *plan*, the distributor should advise the third party of the non-compliances and could pursue additional remedial solutions through its attachment agreements. Where the third party does not rectify the non-compliance within a reasonable time, the distributor may notify an appropriate regulator or ESA, who in turn may carry out its own investigation.

(* *Note: The issuance of a Certificate by the distributor is subject to the cooperation afforded by the third party.*

2.5 Certificate issued under a Construction verification program

2.5.1 What should be included in a Certificate issued under a construction verification program?

Once satisfied that the *equipment* is approved and the installation is in accordance with the *plan, work instruction, Standard Designs, or legacy construction* authorized by a *professional engineer; a qualified person* can prepare a *Certificate*.

The *Certificate* should include:

- identification of the construction inspected;
- confirmation that the construction is in accordance with the *plan, work instruction, Standard Designs, or legacy construction* authorized by a *professional engineer*, including the use of *approved equipment*;
- job classification, name, and signature of the *qualified person* completing the *Certificate*; and
- date of certification.

Sample *Certificates* are illustrated in Appendix A.

However, in recognition that *line* repair or replacement work that is done under emergency conditions (“trouble calls”) or for maintenance purposes in accordance with *legacy construction* (subject to the authorization of a *professional engineer*) may not have a *certificate of approval*, all such work would require a *record of inspection* and a *Certificate* by a *competent person*. *Competent persons* preparing *Certificates* are to be identified as *qualified persons* in the *construction verification* program.

The *Certificate* can be a separate document or a stamp on associated documents such as the inspection report and/or construction drawings.

2.6 Documentation

2.6.1 How long does *construction verification* documentation need to be kept?

The *distributor* is to retain the *records of inspection* and *Certificates* and make them available to ESA upon request for a period of at least one year after the annual audit, following construction completion.

However, the *distributor* is encouraged to consider maintaining the audit documentation for longer periods of time consistent with its existing documentation retention processes.

2.7 Inspection and Approval by ESA

2.7.1 What are the conditions associated with inspection and certification by ESA?

Upon request by the *distributor*, the inspection and approval of construction can be carried out by ESA.

The purpose of the ESA inspection is to review the construction with respect to the *safety standards* as outlined in section 4 of the *Regulation* and to ensure that *approved equipment* is used. ESA will not approve the integrity of the construction for other parameters such as efficiency or cost effectiveness. ESA will prepare a *record of inspection* and if satisfied that the construction meets the *safety standards* will provide a *Certificate* to the *distributor*.

The *distributor* should allow sufficient time for the coordination of inspection and approval by ESA in their job planning.

2.8 **Deviation from the Required Standards**

The *Regulation* allows construction to vary from the *safety standards* under specific situations. Where a *distributor* intends to follow its *construction verification* program, the *distributor* is to outline its process for handling these situations.

2.8.1 **Insufficient Space**

Where a portion of a *distribution system* is upgraded and does not meet the standards for clearances and separations as specified in the National Standards or Code (see section 3.2), the *distributor* may still put the system into use if a *professional engineer* certifies that:

- the reason for failing to meet the standards was a lack of space; and
- the failure to meet the standards will not materially affect the safety of any person or property.

The *distributor* is to retain the engineer's *certificate* of deviation approval.

2.8.2 **Replacement of part or portion of a *line* under emergency conditions or for maintenance in accordance with *legacy construction* subject to the authorization by a *professional engineer*:**

Under special conditions, Section 9(2) of the *Regulation* allows a part or portion of an existing *distribution system* to be replaced with a similar part or portion that does not meet the *safety standards* required by the *Regulation*, as long as the *distributor* ensures that the construction does not create any undue hazard to the safety of any person.

Like-for-like replacement, line repair or replacement work done under emergency conditions (trouble calls), or maintenance in accordance with *legacy construction* subject to authorization of a professional engineer, are exempted from the requirements of Section 7 of the *Regulation*. However,

such work is to be inspected by a *competent person* to confirm that it presents *no undue hazards*.

2.9 Appendices for Construction Verification

Appendix A	Sample Certificates
Appendix B	Construction Verification Checklist
Appendix C	Generic Construction Verification Program

**Appendix A
Sample Certificates**

Sample wording for stamp – Professional Engineer:

Certificate	
This is to certify that the construction as recorded in this drawing meets the requirements of the safety standards of Regulation 22/04	
_____ Name	_____ Date
_____ Signature & Professional Designation	

**Appendix B
Checklist Inspection and Approval of Construction**

Item	Comply		Comments
	Yes	No	
<i>Record of inspection completed</i>			
<ul style="list-style-type: none"> • <i>Approved plan has been followed</i> 			
<ul style="list-style-type: none"> • <i>Standard Designs applied correctly</i> 			
<ul style="list-style-type: none"> • <i>Approved equipment used</i> 			
<ul style="list-style-type: none"> • <i>Like-for-like or legacy construction subject to authorization by a professional engineer presents no undue hazard</i> 			
<i>Certificates completed</i>			
<ul style="list-style-type: none"> • <i>Construction identified</i> 			
<ul style="list-style-type: none"> • <i>Construction confirmed in compliance with safety standards or for like-for-like or legacy construction subject to authorization by a professional engineer confirmed no undue hazard</i> 			
<ul style="list-style-type: none"> • <i>Any progressive inspections have been documented and partial Certificates completed</i> 			
<ul style="list-style-type: none"> • <i>Signed and dated</i> 			
<i>Competent and qualified persons have received training on the distributor's construction verification program</i>			
<i>System determined for logging "site safe" on time sheets, dispatch log, etc. is identified in the distributor's construction verification program</i>			
Audit Type Points			
<i>Certificates available for all construction</i>			
<i>Construction verification program exists and approved by ESA</i>			
<i>Qualified persons have followed the requirements of the construction verification program</i>			
<i>Process exists for up-dating list of qualified persons</i>			
<i>For the audit period, copies of the record of inspections & Certificates are available</i>			

Appendix C

Generic *Construction Verification* Program

This generic program outlines the major areas that a *distributor* should consider in developing its *construction verification* program. Depending on the individual program complexity, there may not be the need for the distributor to include in its program all sections or options outlined below.

1.0 **Statement of Purpose:**

- 1.1 To outline how the *distributor* will meet the *construction verification* requirements set out in the *Regulation 22/04*.
- 1.2 To ensure that construction follows *plans, work instruction, Standard Designs, or Legacy Construction* and that only *approved equipment* is used.

2.0 **Qualified Person or Competent Persons for the Purpose of the *Construction Verification* program**

- 2.1 Outline the positions or names of individuals that are qualified to inspect and approve construction of the *distributor's distribution systems*. Although names of the individual are not required, an up-to-date list of positions or individual names should be available upon request by ESA or for audit purposes.
- 2.2 Provide the qualifications of each position in support of the above.
- 2.3 If applicable, the *distributor* should outline the type of construction each position is qualified to inspect and approve.
- 2.4 List the competent positions or persons that are qualified to inspect and approve emergency work, *like-for-like replacement, and legacy construction*(subject to authorization by a *professional engineer*) replacement.

3.0 **Process for Completing Inspection:**

- 3.1 Outline when the inspection for various types of work is to be completed (at end of job, group inspection, etc)
- 3.2 What documentation forms a *record of inspection* for the various types of work to be inspected (as constructed drawings, service orders, listing of orders, trouble calls, etc)
- 3.3 Instructions on how to manage the *records of inspection* and where these will be filed
- 3.4 Instructions for completing a *record of inspection* of construction and noting *equipment* compliance

4.0 **Resolving Non-Compliance:**

- 4.1 Outline a process for resolving non-compliances including who to consult within the organization and levels of authority with respect to resolution of non-compliances
- 4.2 Instructions on how to record non-compliances and resolutions.

- 5.0 Sampling of emergency work and *like-for-like* replacements:**
- 5.1 Outline what types of work sampling will be used for and the proposed sampling rate
 - 5.2 Outline the sampling program including:
 - 5.2.1 All construction covered by a sampling program to be performed and verified by *qualified* or *competent persons*,
 - 5.2.2 Note when *Certificates* are required. Individual *Certificates* are not required for each work site inspected as part of a sampling program but *Certificates* are to be prepared documenting the sites covered by the sampling.
 - 5.2.3 Statement that the *distributor* is satisfied that the work sites are left in a safe condition upon completion of the work
 - 5.2.4 Safe condition means that the site presents *no undue hazard*
 - 5.2.5 Distributor will inspect a sample of the sites and prepare *records of inspection* to demonstrate that the *safety standards* of the *Regulation* have been met
 - 5.3 Identify where confirmation from the field of safe condition will be recorded, by whom and what signature, if any, is required (dispatch, time sheets, work instruction etc)
 - 5.4 Proof that the record forms part of the document retention program.
- 6.0 Process for completing *Certificate***
- 6.1 Outline when *Certificates* are to be completed
 - 6.2 Instructions on how to complete a *Certificate*
 - 6.3 Provide examples of *Certificates* by types of construction
 - 6.4 Identify where the *Certificate* will be filed (on the drawing as a stamp, in job file, etc.)
- 7.0 Work in Progress:**
- 7.1 Outline when interim inspection is to be done
 - 7.2 Outline how to incorporate interim *records of inspection* with the final *Certificate*
- 8.0 Third Party Inspection:**
- 8.1 Outline the process to approve requests for attachments by a third party
 - 8.2 Outline the process to inspect third party attachments – inspection by the *distributor* or by third party and documentation provided
 - 8.3 Mechanism for resolving non-conformances by a third party.
 - 8.4 Final *record of inspection* noting resolution of non-conformances
 - 8.5 How and where the final *record of inspection* and *Certificate* will be filed
- 9.0 Training:**
- 9.1 Indicate the training to be provided to each *competent* or *qualified person* in the *distributor's construction verification* program.
 - 9.2 Maintain records of training provided to each *competent* and *qualified persons*.