
Updated Practice Advisory Bulletin #7

Changes to Tower Crane Inspections under O. Reg. 213/91 under the Occupational Health and Safety Act

Revised January 2025

1. Introduction

PEO has a mandate to regulate the practice of professional engineering in Ontario under the *Professional Engineers Act* to serve and protect the public interest by setting and upholding high academic, experience and professional practice standards for the engineering profession. Individuals licensed by PEO are the only people permitted by law to undertake and assume responsibility for engineering work in Ontario. As a service to its licence holders and the public, PEO is re-issuing this bulletin to notify licence holders of their professional responsibilities relating to the provincial government's regulation changes for tower crane inspections that came into effect on January 1, 2024 now that the Engineering Inspection Practice Standard for Tower Cranes as Required by Ontario Regulation 213/91 under the *Occupational Health and Safety Act* ("the practice standard") has been updated and Ontario Regulation 260/08 (Performance Standards) has been amended.

In November 2015, PEO first published a *Practice Standard for Tower Crane Review* ([Performance Standards | Professional Engineers Ontario \(peo.on.ca\)](#)), and Part IV of Ontario Regulation 260/08 (Performance Standards) was amended in 2016 to reference that practice standard ([O. Reg. 260/08: PERFORMANCE STANDARDS \(ontario.ca\)](#)).

On September 27, 2024, PEO Council approved an updated version of the **Engineering Inspection Practice Standard for Tower Cranes as Required by Ontario Regulation 213/91 under the Occupational Health and Safety Act (Practice Standard)** to align with the changes to O. Reg. 213/91. This bulletin is intended to supplement that with **interpretation/explanation** of an engineer's professional responsibilities in meeting the requirements of the updated practice standard. The revised practice standard came into effect on December 13, 2024 when O. Reg. 260/08 was amended.

*Appendix A illustrates the significant changes between the 2015 practice standard and the revised one and their rationales.

Notes:

PEO licence holders are required to "make responsible provision for complying with applicable statutes, regulations, standards, codes, by-laws and rules in connection with work being undertaken by or under the responsibility of the practitioner", and to follow the *Professional Engineers Act* and its regulations [such as O. Reg 260/08 (Performance Standards), which refers to the practice standard]. Failure to do so can

constitute professional misconduct under subsections 72(2)(d) and (g) of Regulation 941, respectively. Therefore, all licence holders who practise professional engineering in any capacity related to tower cranes must personally review and comply with PEO's updated practice standard and all changes to O. Reg. 213/91.

Reading this bulletin alone does not substitute for reviewing those changes, and PEO is not liable for any licence holder failing to comply with the requirements in O. Reg. 213/91 or O. Reg. 260/08. This bulletin should not be used as or considered legal advice.

Referring to the singular (for example, "engineer" or "person directed by the engineer") includes reference to the plural and vice versa or "he/she" or "they", are taken as interchangeable. This is especially pertinent to allowing multiple engineers to submit written inspection reports, within their respective areas of competency.

2. Summary of Ministry of Labour, Immigration, Training and Skills Development (MLITSD) Regulation changes

On August 8, 2023, through Ontario Regulation 241/23, the Ministry of Labour, Immigration, Training and Skills Development (MLITSD) ("the ministry") made updates to modernize and clarify existing requirements relating to the use of tower cranes set out in the [Construction Projects Regulation](#) (O. Reg. 213/91) under the [Occupational Health and Safety Act](#) (OHSA) including those that pertain to professional engineers:

- Clarifying or adding new design, installation, maintenance, inspection and record-keeping requirements;
- Requiring more comprehensive inspections of tower cranes, including referencing PEO's Practice Standard for Tower Crane Review, and clarifying and expanding the role and responsibilities of professional engineers in the design, erection and inspection of tower cranes;
- Introducing new, and updating existing, references to relevant national and international standards relating to the design and operation of tower cranes;
- Addressing advances in technology, including adding and amending requirements that consider specific operational needs for self-erecting tower cranes;
- Clarifying requirements for cables, slings and rigging that apply to all cranes and cover hoisting operations by other equipment; and
- Expanding inspections of tower cranes beyond structural components to include electrical, mechanical and hydraulic components, and its control systems.

3. Engineers Performing Tower Crane Inspections

Note:

O. Reg. 213/91 refers to an "engineer", as defined in section 1 of the *Occupational Health and Safety Act* (OHSA), as "...subject to any prescribed requirements or

restrictions, a person who is licensed as a professional engineer (P.Eng.) or who holds a limited licence under the *Professional Engineers Act*; (“ingénieur”)¹. This means that only holders of a professional engineer (P.Eng.) licence or a limited licence (LEL) can perform the duties required of an engineer in O. Reg. 213/91. Temporary licence holders are therefore prohibited from performing tower crane inspections.

3.1 Undertaking Inspections

Typically, but not exclusively, engineers who perform inspections on tower cranes have training and experience in one or more of the following disciplines:

- Structural engineering;
- Mechanical engineering;
- Electrical engineering; or
- Materials/Metallurgical engineering.

Subsections 158(1), 159(1) and 165(3) of O. Reg. 213/91 require that “an engineer shall ensure that certain tower crane components are inspected in accordance with the performance standards for inspecting a tower crane as prescribed by Ontario Regulation 260/08 (Performance Standards) made under the *Professional Engineers Act*”. Subsections 158(3) and 159(2) also require that

“The engineer conducting the inspection or under whose direction an inspection is done shall prepare a written report of the inspection and test results in accordance with the performance standards for inspecting a tower crane as prescribed by Ontario Regulation 260/08, including confirmation that all components are in adequate condition. O. Reg. 241/23, s. 14”.

PEO’s definition of “professional misconduct” in section 72(2)(h) of Regulation 941 under the *Professional Engineers Act* prohibits engineers from practising in areas outside of their competency. PEO’s [Professional Engineering Practice Guideline](#) (page 9) more specifically addresses this issue regarding professional responsibility, as follows:

“Good professional conduct includes practising only within one’s competence. Practitioners must realize that for both legal and ethical reasons they **should not undertake assignments unless they honestly and reasonably believe that they are competent to carry out the work**, or that they can become competent without undue delay, risk or expense to the client or employer, or that they will engage a competent licence holder to carry out work that is beyond their expertise. Practitioners who proceed on any other basis are not being honest with their clients or employers.”

“Failure to meet these requirements leaves practitioners open to scrutiny by their peers and their professional association, pursuant to section 72(2)(h) of O. Reg. 941/90. Refer to “professional misconduct” (section 72 of O. Reg. 941/90) and to “incompetence” (section 28(3) of the Act). It should be noted that incompetence can mean not only a lack of knowledge, skill or judgment, but also the suffering from a physical or mental condition that can interfere with the exercise of one’s professional judgment.”

¹ Definition added on July 1, 2022

As tower crane inspections in O. Reg. 213/91 now include structural, **mechanical and electrical components**, **more than one engineer may be required to complete tower crane inspections within each engineer's area of competency, at the various times for inspection, and to submit their respective written report(s)**. Therefore, each engineer performing or supervising an inspection of tower crane components within their competency must sign or stamp their work, and multiple seals or stamps could be required for a completed inspection of a tower crane based on those competencies.

An engineer engaged to perform a tower crane inspection must decide whether they have the necessary competencies to perform the full scope of the inspection (structural, mechanical, electrical, hydraulic and control systems). If the engineer is of the opinion that he or she does not have the full range of competencies to perform the full range of inspections, the engineer is required to inform the crane owner to that effect. Other engineers with the relevant competencies will be required to perform all or part of the inspection as necessary. The crane owner must then find other engineers to perform the work within their respective competencies (for example, mechanical, electrical or materials/metallurgical).

The following are examples of tasks for which another engineer may be engaged if the initially engaged engineer is not qualified:

- Concrete foundation analysis
- Structural analysis (including tie backs and building interconnections)
- Mechanical analysis
- Electrical analysis
- Control and Anti-Collision analysis
- Welding repair instructions

The engineer may also direct a person who is not a licensed engineer to perform all or part of the inspection not limited to within the engineer's area of competency.

If the inspection reveals an issue that cannot be addressed with the original equipment manufacturer (OEM) repair instructions or an undocumented modification has been discovered (refer to section 3.4 below), and the engineer does not have the required competency or qualification to provide the repair instructions, other engineers with the relevant competencies will be required to perform all or part of the inspection as necessary. The crane owner must then find other engineers to perform the work within their respective competencies (for example, mechanical, electrical or materials/metallurgical).

With respect to the requirement in subsections 158(1) and 159(1) of O. Reg. 213/91 that an engineer "shall ensure that.... are inspected in accordance with the performance standards for inspecting a tower crane as prescribed by Ontario Regulation 260/08 (Performance Standards) made under the *Professional Engineers Act*", "ensuring" does not necessarily mean that an engineer must do the inspection themselves, nor take responsibility for the content if the engineer is not competent in that area. They are only required to ensure completion of inspection for the process. Engineers are required to complete the inspections themselves or to confirm that all aspects of inspections required in the practice standard have been completed by qualified personnel under their direction.

3.2 Contractual Role of Engineers

This bulletin forms part of Professional Engineers Ontario's (PEO's) ongoing commitment to maintaining the quality of professional services that engineers provide to their clients and the public for safety. An engineer must exercise professional judgment when providing professional services; as such, deviation from strict adherence to these guidelines may be justifiable in certain circumstances or in the event that there are changes in legislation, regulations, codes or standards subsequent to the publication of these guidelines.

PEO supports the principle that appropriate financial, professional and technical resources should be provided (i.e., by the client and/or the employer) to support engineers who are responsible for carrying out professional activities, so they can comply with this practice standard.

This bulletin may be used to assist in the level of service and terms of reference of an agreement between an engineer and a client. This document is intended to assist the engineer in fulfilling their professional obligations.

The engineer must ensure that he or she is competent to certify the relevant inspection of the equipment. The engineer should then engage with the client, as appropriate, to develop a scope of work. The scope will include, but will not be limited to, the following:

- Review any relevant required documentation provided by the equipment operator, manufacturer and/or for the client;
- Provide direction for the work of any non-engineering professionals performing some or all of the required inspections of components:
 - provide supervision of the structural inspection personnel, including guidance as to which components require inspection and which inspection methods are to be used;
 - ensure that the inspection personnel performing the structural inspections are qualified to perform appropriate CGSB and CWB inspection methods;
 - provide any structural repair instructions and re-inspection requirements, if required; repair instructions may be obtained from the OEM or provided by the engineer;
 - confirm that the required electrical, mechanical and controls inspections have been completed according to the Ontario Regulation 213/91: Construction Projects, applicable standards and by OEM specifications;
 - confirm the qualifications of mechanical maintenance, electrical maintenance and controls inspection personnel;
 - confirm the qualifications of repair personnel;
 - confirm that electrical, mechanical and control system repairs have been completed in accordance with the supplied repair instructions;
 - confirm that any additional testing or inspections are completed, following completion of repairs;
 - provide a written inspection report for each inspection time needed, in a timely manner; and
 - confirm adequate condition of components where necessary as referenced in ss. 158(3), 158(4)(b), and 159(2) of O. Reg. 213/91 in accordance with the performance standards for inspecting a tower crane as prescribed by Ontario

Regulation 260/08 (Performance Standards) made under the *Professional Engineers Act*.

If the engineer determines that the client or equipment operator is not fulfilling their responsibilities as described above, then the engineer should consider either:

- recommending in writing that the client fulfills its responsibilities;
- offering an expanded scope of work to assist the client in fulfilling its responsibilities; or
- withdrawing from the project.

The engineer, if certified to CAN/CGSB 48.9712-2014 or an amended version of this standard that was in effect at the time of certification, shall perform, or instruct a qualified non-destructive testing (NDT) technician to perform, a visual examination and non-destructive testing of all accessible areas mentioned in the relevant sections.

For all types of inspections, the engineer can perform the inspection (electrical, structural and mechanical), only if they are certified in the type of inspection which is required .

The engineer shall verify that the person(s) they direct to perform any inspections are qualified to perform the inspections and shall obtain copies of the person's credentials including the name, qualifications and employer of the person completing the inspection and tests.

3.3 Written Inspection Reports

Written inspection reports for tower cranes are required under O. Reg. 213/91 at the pre-erection and post-erection (but prior to use) stages, and now at annual in-use stages, as well as for self-erecting tower cranes. A standardized inspection report format should be implemented for the initial, periodic and annual inspections to enable consistency across different assessments, making it easier to track over time. When an engineer obtains a report in the course of performing the inspection requirements and reviews the report's contents, the engineer shall determine whether the report meets the requirements of the practice standard, CSA Standard Z248-17 or OEM specifications and shall prepare a compliance report summarizing the findings.

The findings shall be presented to the tower crane owner in a clear, logical format that identifies any deficiencies in reports or findings that require immediate action as soon as possible. Inspections shall only continue after the tower crane owner corrects the identified deficiencies.

3.4 Confirmation of Adequate Condition of Components

Subsections 158(3) and 159(2) of O. Reg. 213/91 include a requirement for the engineer to include in his or her written inspection report "confirmation that all components are in adequate condition". Subsection 158(4)(b) of O. Reg. 213/91 has a similar requirement regarding corrections and repairs of identified defects:

- (4) A tower crane shall not be used until,
 - (a) any defects identified in the inspection have been corrected or repaired in accordance with the instructions of the tower crane manufacturer or an engineer; and

(b) the tower crane has been inspected by an engineer and the engineer has prepared a written report of the corrections, repairs and results of the inspection confirming that any defects identified have been corrected or repaired and that **the corrected or repaired components are in adequate condition**. O. Reg. 241/23, s. 14.

Confirmation generally means to audit the accuracy, validity or genuineness of the inspection findings completed and documented by all involved parties in order to state that the work has been comprehensive and satisfies the inspection requirements described in CSA Z248-17 and by the OEM.

“adequate” is already defined in subsection 1(1) of O. Reg. 213/91:

“adequate”, in relation to a procedure, plan, material, device, object or thing, means,

(a) sufficient for both its intended and its actual use, and

(b) sufficient to protect a worker from occupational illness or occupational injury,

and “adequately” has a corresponding meaning; (“adéquat”, “adéquatement”)

Statements:

A statement that “All components inspected by me or under my direction are in adequate condition” is recommended to be included in the written inspection reports.

The engineer must also include a statement that the tower crane is ready to be put into service, including confirmation that all components: comply with the requirements of this practice standard, CSA Standard Z248-17 and OEM specifications; are in adequate condition; is ready to put into service with specific limitations; or is not ready to be put into service due to specific deficiencies.

3.5 Impact of Modifications on Inspections

During the process of inspecting a tower crane or its components described in Parts A, B, C, D or E of the practice standard, the engineer may encounter modification(s) previously made to the tower crane. The discovery of the modification(s) may come about as a result of the initial maintenance documentation review, or it may be discovered during the inspection of the tower crane components. Replacements or modifications must have the same safety factor as the part it is replacing.

Section 95 of O. Reg. 213/91 reads as follows:

95. (1) Every replacement part for a vehicle, machine, tool or equipment shall have at least the same safety factor as the part it is replacing. O. Reg. 213/91, s. 95 (1).

(2) No modification to, extension to, repair to or replacement of a part of a vehicle, machine, tool or equipment shall result in a reduction of the safety factor of the vehicle, machine, tool or equipment. O. Reg. 213/91, s. 95 (2).

Should it be found that any components have been modified by the crane owner, or previous crane owners, all modifications are required to be documented by either the OEM or by an engineer. The modification(s) must be documented completely and that documentation must include:

- a) design drawings;
- b) material or component specifications;
- c) installation instructions;
- d) maintenance instructions and intervals; and
- e) inspection type and frequency.

Examples of modifications include the following:

- replacing a hoist motor gear box with one supplied from a manufacturer other than the OEM;
- rewiring or implementing changes to the control systems or electrical panels (electrical or hydraulic) in ways that deviate from the OEM's schematics; or
- replacing a structural component with a different manufacturer's product or extensive alterations to a structural component's design from that of the OEM.

A modification should not be undertaken without:

- validation by the OEM; or
- the approval of an engineer.

Any modification must be recorded in the inspection and maintenance records, and the equipment operation and maintenance instructions are to be provided in writing as necessary to ensure adequate and appropriate information is available for the safe use and maintenance of the equipment. This may include revising the maintenance instructions and specifications, operation instructions, and/or the rated capacity.

Electrical inspection(s) by electrical engineer:

As per Part A of the practice standard, subsection (14) (regarding daily, weekly and monthly electrical inspections), as long as no modification to the tower crane's electrical components was made (as per the definition in section 3.4 of the bulletin) after initially obtaining Electrical Safety Authority (ESA) certification (SPE1000), then electrical inspection by an engineer is not required for approval of ESA Spec 00X009 to verify that all electrical components have been approved by a recognized authority (in this case, the ESA).

Therefore, a master electrician, qualified electrician or qualified technician, would be sufficient to approve the unmodified condition of a tower crane's electrical components, with applicable and current documentation and certification. Each electrical inspection shall follow CSA Z248-17, specifically sections 8.3.2 "Preoperational inspection and test", 8.3.3 "Limit switches and safety devices", and 8.3.4 "Power supply".

If modifications have been made to the electrical components since the initial ESA certification, an electrical engineer is required to inspect, or direct other qualified personnel to inspect, the electrical components, new design and testing reports to verify compliance with ESA and safe compliance.

3.6 Compilation of Written Inspection Reports from Multiple Engineers

Where a written inspection report being submitted by an engineer includes sections or portions that were prepared by other engineers (such as in the case where other engineers with the relevant competencies performed parts of the inspection), the engineer submitting the report should ensure all sections and parts of the report have been properly organized and compiled into a single final inspection report for the tower crane.

PEO's [Use of the Professional Engineer's Seal guideline](#) provides instructions regarding work done by multiple practitioners:

“For an engineering document covering work done by multiple practitioners each practitioner taking responsibility for a specific part of the document must seal it. Furthermore, each practitioner must indicate what area of the work they are responsible for, as per section 53(6) of Regulation 941:

(6) If clause (2) (b) applies, the practitioner shall ensure that the engineering document clearly indicates the portion of the document's engineering content for which the practitioner assumes responsibility, including by way of suitable text located in the immediate vicinity of the practitioner's seal”. (Page 8)

Furthermore, section 53(1) of Regulation 941 defines “document” as including a report.

An engineer who is submitting or compiling written inspection reports from other engineers should include a disclaimer that they are submitting the sealed work of other engineer(s) without assuming responsibility for the other engineers' work. Each engineer who submitted a written inspection report is responsible for their respective inspection in accordance with the performance standards for inspecting a tower crane as prescribed by Ontario Regulation 260/08, including confirmation that all components are in adequate condition.

4. Tower Crane Inspections by a Person Directed by an Engineer

As allowed by subsections 158(3) and 159(2) of O. Reg. 213/91, the engineer may direct a person who is not a professional engineer or limited licence holder to carry out one or more of the functions described in Parts A, B, C or D where it is consistent with prudent engineering practice to do so and the functions are performed under the direction of the engineer in accordance with the practice standard.

In all of these instances, the engineer is not able to assess a person's competence without there being formal training related to the work being performed. As per the definition of “qualified technician” it is the obligation of the tower crane owner, client, operator or OEM, not the engineer, to determine the person's competence to perform the work on specific components of the tower crane inspection. Qualified NDT technicians, qualified electricians and master electricians have certifications, respectively from Natural Resources Canada and the Electrical Safety Authority.

When providing direction to non-engineering professionals, the engineer will ensure that the inspections are completed in accordance with the requirements of the OEM and the inspections requirements stated in CSA Standard Z248-17. The engineer shall direct the inspection personnel on the specific inspection requirements to be performed by referencing the specific

section of the CSA Standard Z248-17 or those found in OEM maintenance manuals, service bulletins or modifications.

Inspections are to be documented as required in Parts A, B, C and D of the practice standard. This would require the inspection to be comprehensive and detailed so that the inspections comply with those requirements; and that if deficiencies are found, they have been addressed. The engineer will be responsible for reviewing the related inspection documentation, to verify that all inspections were completed, and that all deficiencies were suitably addressed. The engineer does not have to independently verify the inspections by qualified personnel under their direction. **If the engineer is not competent with the practice area of the inspection, then the engineer has to ensure the inspection has been completed, but the engineer is not responsible for its content.**

The engineer should not directly hire third-party personnel or organizations to conduct inspections on their behalf to avoid conflict of interest and insurer liability concerns. Professional liability insurance is a requirement for holders of a PEO certificate of authorization. Many professional liability insurers will not provide coverage in instances where the engineer conducts their own repairs or hires a third party to do so. The engineer can only direct repairs in areas of their competency. In all instances, repairs should be performed by a third party. An arm's length relationship is necessary to avoid these liability or conflict of interest concerns.

4.1 Directed Inspection Personnel - Structural

Structural inspection personnel may consist of either a single person who holds all the required inspection qualifications, or a team of practitioners, each of whom is qualified in a required inspection method. The engineer may also serve as one of the inspection personnel.

Generally, the inspection personnel perform a visual examination of the equipment, looking for damage, missing or improperly assembled parts, and conformance with O. Reg. 213/91 and OEM standards. The inspection technician must be familiar with the applicable occupational health and safety regulations, and the relevant codes and standards. If the inspection technician is not an engineer, then the inspection technician must work under the direct supervision of the engineer and must be sufficiently familiar with the type of equipment being inspected (and its components) to complete a competent inspection.

The inspection technician performs any required non-destructive testing (NDT) on critical or suspect items as identified by the engineer or the OEM. Allowable NDT methods employed in equipment inspections are defined in s.1(1) of O. Reg. 213/91 as one of the following:

- Liquid penetrant testing;
- Magnetic particle testing;
- Ultrasonic testing;
- Radiographic testing; or
- Eddy Current testing.

“Qualified NDT technician” means a person **certified by** Natural Resources Canada to the appropriate level in accordance with the version of the CAN/CGSB Standard 48.9712-2014, Non-destructive Testing — Qualification and Certification of Personnel, that was in effect at the time of certification, and whose certification is valid at the time the test is carried out and interpreted.

4.2 Directed Inspection and Maintenance Personnel – Electrical, Mechanical and Controls

Electrical, mechanical and controls inspection and maintenance personnel may be either a single person who holds all the required qualifications or a team of practitioners, each of whom is qualified. These personnel could include qualified mechanics, electricians, master electricians or other tradespeople involved in the inspection, maintenance and repair of the electrical, mechanical and control systems of the equipment (as the case may be.)

These personnel must be:

- assessed as qualified and competent by the tower crane owner, client, operator or OEM for the specified inspection, maintenance or repair work of the equipment;
- familiar with;
 - the equipment to be maintained,
 - the requirements of Ontario Regulation 213/91 and applicable codes and standards such as CSA Standard Z248-17
 - OEM documentation, such as operation and maintenance manuals, as well as any applicable bulletins; and
- aware that any work performed that is considered a modification requires the approval of the OEM or the engineer.

4.3 Annual In-Use inspections (Part B of the Practice Standard)

One of the new requirements in O. Reg. 213/91 is the addition of annual in-use inspections of tower cranes [in paragraphs 1(iii) and 2(ii) of subsection 158(1)]. The annual inspection of tower cranes (Part B) relies in part A on the confirmation that equipment has been properly maintained throughout the year by a “competent worker” as defined in O. Reg. 213/91 for the following subsections:

- Section 161(1) refers to operational tests performed by a competent worker.
- Section 153(9) refers to inspections performed on the crane prior to each use by a competent worker.
- Section 154(1) is in relation to the set up and assembly of the crane by a competent worker.

It is recommended that engineers and limited licence holders follow Part A thoroughly to reduce the need for annual inspections.

4.4 Climbing Systems Inspections (Part C)

While outside of the scope of this practice standard, the engineer shall ensure that other requirements in relation to climbing operation in O. Reg. 213/91 are met. The regulation mandates the minimum requirements for shoring and bracing, building or structure that supports the tower crane, inspection of tie-ins, shoring and bracing, confirmation report that the shoring, bracing and tie-ins are installed in accordance with the drawings, instruction for additional inspection, and inspection frequency of the shoring, bracing and tie-ins after each climbing operation. For reference, these requirements are listed in subsections 157(2), (4), (10), (11), (12) and (13) of O. Reg. 213/91.

The inspection of the climbing system (Part C) is given more importance as a critical life safety system, and therefore is elaborated and more detailed.

The inspection of a climbing system is to be performed in addition to the requirements of Parts A and B, and prior to each use of the climbing system [as also required on ss.159 (1)(b) for climbing system as per CSA Standard Z248-17, section 5.9.8.8 "Climbing section"]. The expectation of inspection prior to each use is a higher inspection frequency than those described in annual inspections of Parts A and B above. As such, the requirement for inspection prior to each use may require these components to be inspected more frequently than the annual interval.

4.5. Self-erecting Tower Crane Inspections (Part D)

A self-erecting tower crane is capable of being erected without the use of ancillary equipment. The Ministry added a definition in section 1(1) for this type of tower crane and its inspection requirements before the crane is put into service for the first time in section 158(1) paragraph 2 of O. Reg. 213/91. After that first inspection, inspections must be conducted:

- at least once every 12 months while the crane is in use at a project;
- after every 12 erections of the crane; or
- as often as is recommended by the crane manufacturer, whichever occurs first.

As per the new requirement in section 158 of O. Reg. 213/91, the inspection standards for self-erecting tower cranes are prescribed in O. Reg. 260/08 (Performance Standards under the *Professional Engineers Act*), which refer to the PEO Practice Standard on Tower Crane Inspections.

Many of the inspection performance standards for self-erecting tower cranes are similar to those for erected tower cranes (Part A), however there are fewer structural components to be inspected.

5. Inspections of Tower Cranes Mounted on a Travelling Base [Subsection 165(3) of O. Reg.213/91] (Part E of the Practice Standard)

Section 165(3) of O. Reg. 213/91 specifies the engineer as the **only** person allowed to perform inspections of a tower crane on a travelling base; another person cannot be directed by the engineer. In this specific instance, if any unlicensed persons are involved in the inspection, the engineer must supervise and assume responsibility for their work so that the inspection requirements listed in Part E of the practice standard are complied with. The additional supervision requirements would follow the requirements of [PEO's Assuming Responsibility and Supervising Engineering Work Guideline](#)

As per the general provision of paragraph 1.iii of subsection 158(1) of O. Reg. 213/91, the structure above the foundation or travelling base is the same, and is subject to an annual inspection while at a project.

6. Additional supplementary documents and support

PEO has published additional materials to assist in education of the changes to its practice standard, which can be found on PEO's website:
<https://www.peo.on.ca/knowledge-centre/practice-advice-resources-and-guidelines>):

More specifically for practice standards (Including tower crane):
[Performance Standards | Professional Engineers Ontario \(peo.on.ca\)](https://www.peo.on.ca/performance-standards)

Frequently Asked Questions: <https://www.peo.on.ca/sites/default/files/2025-01/tower-crane-faq.pdf>

See also the Ministry of Labour, Immigration, Training & Skills Development's tower crane guideline: <https://www.ontario.ca/page/technical-guideline-requirements-cranes-construction-projects>

For personal practice advice related to the practice standard or for further information, please contact PEO's Practice Advisor at practice-standards@peo.on.ca.

7. Appendix A

8. Explanation of Changes to PEO Tower Crane Inspection Practice Standard

Page(s)	Description of Changes	Remark(s)/ Reason
Page 2	<p>Section 1 Purpose and Scope of Practice Standard</p> <p>...The primary purpose of the required inspections is to ensure that a tower crane can safely be put into service or to continue service, and to:</p> <ol style="list-style-type: none"> 1. Specify the tasks and services that engineers complete to meet the appropriate standard of practice and to fulfill their professional obligations under the <i>Professional Engineers Act</i>. These obligations include the engineer’s primary duty to protect the safety, health, and welfare of the public and the environment. 2. Describe the engineer’s skill sets and competencies that are consistent with the training and experience required to carry out these professional activities. 3. Describe the standard of practice for professional engineers, limited licence holders, or other persons directed by them when performing tower crane inspections and confirming that all components are in adequate condition, in accordance with ss. 158 (3) and 159 (2) of Ontario Regulation 213/91. 4. 	<p>The objectives of the standard are added to provide proper context to the role of engineers in tower crane inspection processes to comply with new requirements of O. Reg. 213/91. The primary purpose of the required inspections is to ensure that a tower crane can safely be put into service or to continue service.</p>
Pages 2-3	<p>Section 1.1 Definitions</p> <p>Note: Unless noted below, all terms used in this practice standard have the same meaning as given in subsection 1(1) of Ontario Regulation 213/91 or section 1 of the <i>Occupational Health and Safety Act</i>.</p> <p>Added definitions:</p>	<p>Definitions added. Using only terms not already defined in O. Reg. 213/91.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>“electrical component” means any component that is used as part of the electrical system of a tower crane.</p> <p>“equipment operator” means the entity that operates the equipment. This could be the tower crane owner or a separate entity leasing the equipment.</p> <p>“load test” means a process of putting weight on the load block or hook to verify a tower crane’s ability to operate at its designated maximum operating capacity as specified by the original equipment manufacturer or an engineer.</p> <p>“mechanical component” means any component that is used as part of the mechanical system for a tower crane.</p> <p>“modification” means any change, repair or replacement that results in a deviation from the original specifications provided by the original equipment manufacturer.</p> <p>“original equipment manufacturer” (“OEM”) means the company or commercial entity that originally manufactured the equipment, or the entity that assembled the equipment from multiple original equipment manufacturers to sell under its own brand name.</p> <p>“qualified NDT technician” means a person certified by Natural Resources Canada to the appropriate level in accordance with the version of the CAN/CGSB Standard 48.9712-2014, Non-destructive Testing — Qualification and Certification of Personnel, that was in effect at the time of certification, and whose certification is valid at the time the test is carried out and interpreted.</p> <p>“qualified technician” means a person qualified by the tower crane owner, client, operator or OEM as competent by training and experience to perform the work on specific components of a tower crane and who carries out such work on an ongoing basis for a tower crane owner or OEM.</p> <p>“structural component” means any load-bearing or load-transferring components of the equipment.</p>	<p>“qualified NDT technician” updated to reflect ongoing certifications and validations</p> <p>“qualified technician” term now more generic (not only mechanical) and requires owner, client, operator or OEM to qualify them as competent.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
Page 3-6	<p>2.1 Part A: Inspection Requirements Prior to Use The following are prescribed as the practice standard with respect to inspections of a tower crane by an engineer as provided for in ss. 158, O. Reg. 213/91 under the <i>Occupational Health and Safety Act</i> by an engineer or by person(s) directed by the engineer.</p> <p>Note: This Part refers to tower cranes other than self-erecting ones, which are addressed in Part C below, and rail-mounted tower cranes, which are addressed in <u>Part D</u>.</p> <p>Pre-Inspection Review of Tower Cranes prior to Erection Documentation Review</p> <p>(1) Before conducting an on-site review of a tower crane, the engineer shall:</p> <p>(a) request the crane owner, operator or client to make available to the engineer: foundation, shoring and bracing design drawings (s.157 of O. Reg 213/91), all available technical information, full manuals, manufacturer recalls, crane logs (s.152), previous pre-erection and post-erection reports, records of previous non-destructive testing, manufacturer’s recommendations for inspections, repairs and replacement of components as requested in ss.158(1), maintenance records, previous daily, weekly and monthly inspections performed under s.161.1, operational test results performed under ss.160(1), parts replacement records and details of any structural repairs, and any non-routine maintenance, and all records of modifications for the tower crane to be reviewed that provides information for each major component or sub assembly, including, but not limited to the following:</p> <p>(i) tower crane original equipment manufacturer, model, and serial numbers;</p> <p>.....</p> <p>(xii) foundation, shoring and bracing design drawings;</p> <p>(xiii) building or structure tie-ins,</p> <p>(xvii) original equipment manufacturer’s or engineer’s welding procedure specifications;</p> <p>...</p>	<p>Clarified since there are new requirements for self-erecting tower cranes in O. Reg. 213/91 but they are detailed in <u>Part D</u>.</p> <p>Clarified the documentation source(s), need for manufacturer’s information, previous inspections and operational tests The daily, weekly and monthly inspections are based on sections 6.4.4, 6.4.5, and 6.4.6 of CSA Z248-17As per s.157 of O. Reg. 213/91</p> <p>Expanded drawings and tie-ins Structure added</p> <p>Additional parts added as per section 6.4 of CSA Z248-17</p> <p>Added original equipment manufacturer (“OEM”) for clarity.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(xxii) slew ring bolt specifications, performance specifications on slew ring, and bolt maintenance history;</p> <p>(xxiii) Wire rope certifications and wire rope termination proof tests results;</p> <p>(xxiv) All the mechanical and electrical repair records; and</p> <p>(xxv) hook block specification and maintenance record.</p> <p>...</p> <p>(e) request the crane owner, operator or client to provide all wire rope documentation and verify that the ropes conform to the crane manufacturer's specifications or specifications prepared by an engineer; and</p> <p>(f) request the crane owner, operator or client to provide all recall notices and technical bulletins from the manufacturer of the tower crane being reviewed and verify from the crane log book that all recalls and warranty matters for the crane have been dealt with.</p> <p>...</p> <p>(3) If there is no evidence or record that defects have been repaired, the engineer shall immediately inform the crane owner of the outstanding repairs.</p> <p>(4) Upon receiving notice from the crane owner that repairs have been completed, the engineer must either:</p> <p>(a) carry out all inspection(s) or tests needed to verify defects have been corrected; or</p> <p>(b) provide updated instructions to directed personnel for the inspections.</p> <p>Pre-Erection Inspections</p> <p>Examinations and Tests</p>	<p>Adds assignment of responsibility for repair completion to crane owner, operator or client and engineer's follow up on repairs.</p> <p>(5) Selection of appropriate tests from approved methods added</p> <p>See earlier definition change to "qualified NDT technician"</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(5) The engineer shall select appropriate non-destructive test methods from the approved methods and shall provide this information to the qualified NDT technician or firm carrying out these tests.</p> <p>(6) The engineer, if certified to CAN/CGSB 48.9712-2014 or an amended version of this standard that was in effect at the time of certification shall perform, or direct a qualified NDT technician to perform, visual examination and non-destructive test of each of the following components:</p> <p>.....</p> <ul style="list-style-type: none"> (j) boom / jib; (k) counter jib; (l) tower sections; (m) apex; (n) pendant line or bars; (o) travelling base; (p) trolley; (q) hook block; and (r) turntable. <p>(7) The engineer if certified to CAN/CGSB 48.9712-2014 or an amended version of this standard that was in effect at the time of certification shall perform, or direct a qualified NDT technician to perform, a complete visual examination and non-destructive test of a representative sample of the following components as accessible, including, but not limited to, the following:</p> <ul style="list-style-type: none"> (a) access platforms; (b) stairways; (c) ladders; (d) signs and sign connections; (e) crane cabin connection; and (f) guardrails. 	<p>(j) to (r) added to increase safety as per CSA Section 5.2.3.</p> <p>(7) Added complete visual examination and representative sample non-destructive testing</p> <p>(f) added to increase safety, as per CSA Section 4.25.3.</p> <p>(10) Clarifies sources of reports and engineer's requirement to request, not just to obtain. The engineer's responsibility is also added to request the report, not only to make sure the NDT tests are obtained.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(10) The engineer shall request and obtain and review the reports of non-destructive testing detailed in subsections (6) and (7) and shall verify that the report includes:</p> <ul style="list-style-type: none"> (a) date and location where the tests were conducted; (b) name, qualifications and position of the person conducting the tests; (c) description, serial number or identifying mark of the components examined; (d) details of the test method employed and reference to appropriate standards; (e) calibration details of any test equipment used; and (f) results of the examination. 	
Pages 7-8	<p>2.1 Part A: Inspection Requirements Prior to Use <u>Inspections</u></p> <p>(11) The engineer shall verify the persons he or she directs to perform any inspections in (12) through (17), are qualified to perform the inspections and obtain copies of the person’s credentials including the name, qualifications and employing organization of the person completing the inspection and tests.</p> <p>(12) The engineer or qualified NDT technician directed by the engineer shall inspect pin holes for roundness and excessive wear.</p> <p>(13) The engineer or qualified NDT technician directed by the engineer shall verify that all pin retainers are in good condition.</p>	<p>Item (11) would be addressed in documentation provided by the owner. Any change in a pin or bolt that is outside the OEM would have to be provided by the owner. Items (12) and (13) allows for a directed qualified NDT technician.</p> <p>The installation would be done by the erector and documented in the erector report. The <i>pin retainers</i> should be inspected to ensure they are the proper ones required for erection and that they are in a serviceable condition.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(14) The engineer shall request and obtain a report from the master electrician, qualified electrician or qualified technician who has reviewed the electrical schematic drawings to visually inspect panels, operator controls, and power wiring for compliance with the original equipment manufacturer's specifications, local standards and the Electrical Safety Authority SPEC-009 R0, Electrical Safety for Tower Cranes and to verify that all electrical components have been approved by a recognized authority.</p> <p>(15) In assessing the slew ring, the engineer shall:</p> <p>(a) obtain the serial number or unique identifying mark of the slew ring;</p> <p>(b) observe the condition of the gear teeth on bearing and pinion or alternatively, review the report of a qualified NDT Technician, or qualified technician;</p> <p>(c) observe the condition of the slew ring greasing systems including the condition of the grease, grease lines, nipples, and lip seals or alternatively, review the report of a qualified NDT Technician, or qualified technician;</p> <p>(d) verify the torque of bolts by a qualified technician is done according to the manufacturer's specifications;</p> <p>(e) verify that bolts needing replacement as a result of the pre-erection review comply with the manufacturer's specifications or engineer's direction, and</p> <p>(f) verify that the bearing clearance and backlash of the slew ring, when loaded in its most critical orientation, is within limits set by the original equipment manufacturer.</p> <p>(16) The engineer shall request and obtain a report from a qualified technician who has inspected the brake system, gear box, hook block, and the hydraulic system, including pumps and motors, and shall report any improper or inadequate connections, corroded elements, leaks, hose wear and other deficiencies. The</p>	<p>Additional installation reports prepared by the erector to be verified by the engineer.</p> <p>(14) adds the report sources and updates the ESA Spec number. This should be done during the pre-erection inspection due to accessibility. Inspection requirements for controls and electrical equipment fall under Section 4.21 and 4.22 of CSA Z248-17</p> <p>(15) based on s. (14) of 2015 standard with additional requirement for specified qualified personnel: (b), (c) and (d).</p> <p>(16) clarify document sources and adds brake system and gear box for inspection as per CSA sections 4.14 Gear Boxes and 4.15 Brake</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>engineer shall review this report, confirm whether it complies with the requirements in this practice standard, CSA Standard Z248-17, and OEM specifications, and inform the owner about any deficiencies.</p> <p>(17) The engineer or qualified NDT inspection technician shall inspect wire ropes and end terminations as per CSA Standard Z248-17, Code for Tower Cranes</p> <p>(18) The results of the examination of wire ropes described in subsection (17) shall be included in the pre-erection inspection written report.</p>	<p>System, bearing clearance and slew ring added.</p> <p>(17) allows for qualified NDT inspection technician to do this inspection.</p>
Page 8-10	<p>2.1 Part A: Inspection Requirements Prior to Use <i>Pre-Erection Inspection Written Report</i></p> <p>(19) The engineer shall prepare a written pre-erection inspection report that includes:</p> <ul style="list-style-type: none"> (a) date and location where the examinations were completed; (b) record of observations made by all involved personnel in subsections (12) through (16); and (c) the non-destructive testing report, including the name, qualifications and employing organization of the person completing the inspection and tests, and parts tested along with results; and (d) a statement that the tower crane parts comply with the requirements of this practice standard, CSA Standard Z248-17 and OEM specifications. <p>(21) The engineer shall verify that all defects have been corrected before the tower crane is erected and provide a report.</p> <p><u>Structural Components</u></p> <p>(22) For crane components where the pre-erection inspection was completed at location(s) other than the construction site, following delivery of the crane components to the site and before the tower crane is erected, the engineer shall inspect any items identified by the owner, erector or contractor as having been damaged, and provide instructions for dealing with this damage, and provide a report.</p>	<p>(19) is for electrical section only, based on (17) in the 2015 practice standard with additional requirements for inspection report (a) and all involved qualified personnel (b).</p> <p>(21) adds provision of report to owner on defect correction.</p> <p>(22) Inspection of all the parts shall be captured during pre-erection inspection. Post erection inspection is meant for verification. (22-23) Adds more clarity regarding components inspected away</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(23) The engineer shall verify that the components are the same ones inspected during the pre-erection inspection.</p> <p>(24) The engineer shall request and obtain from the crane owner, client or operator the pre-erection inspection report as prepared by that engineer, confirm that the information remains valid and that any instructions have been followed. The engineer shall review this report and confirm whether it complies with the requirements in this practice standard, CSA Standard Z248-17, and OEM, and inform the owner about any deficiencies.</p> <p>(25) The engineer shall request and obtain a report from from the tower crane owner, client or operator prepared by the erector and verify that the installed configuration and counterweights conform to the installation design drawings prepared by an engineer or the original equipment manufacturer. If they do not conform, the engineer shall notify the tower crane owner.</p> <p>(26) The engineer shall request and obtain a report from the tower crane owner, client or operator prepared by the erector confirming that, if tower sections are bolted together, tower bolts have been preloaded to the OEM-specified torque. The engineer shall confirm that the tower bolt preload report includes the following information:</p> <ul style="list-style-type: none"> (a) date the work was completed; (b) the name of the person preparing the report; (c) details of the equipment used, including the serial numbers, or identifying marks; (d) calibration details for the equipment used; (e) settings used on the torque or stretching device; and (f) the applied torque and original equipment manufacturer's specifications. 	<p>from the construction site in the pre-erection inspection.</p> <p>(25) Manufacturer added in the case where a design drawing is missing.</p> <p>(26) Report to be obtained from the owner, client or operator, for engineer's review; Torque must be to OEM specifications.</p> <p>NDT is mandatory during pre-erection inspection so added to 29 for prescriptive guidance.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(27) The engineer shall provide the tower crane owner’s instructions for dealing with any damage in subsection (22), incorrect installation noted in subsections (25) or (26), or missing information required in the report under subsection (26).</p> <p>(28) The engineer shall ensure that swivel on any rope is installed in accordance with the tower crane original equipment manufacturer’s specifications.</p> <p>(29) Following erection, the engineer or qualified NDT technician directed by the engineer shall visually inspect accessible structural components of the tower that are accessible from access platforms and guardrails, which were examined by non-destructive testing during the pre-erection review, to confirm that the parts have not been damaged during erection of the tower crane.</p> <p>(30) The engineer shall request and obtain a report from the tower crane owner, client or operator prepared by the erector, confirming that the following components are properly installed: (a) all parts of the crane structure; ... (31) The engineer shall verify that the crane has been installed in accordance with the installation configuration drawing in accordance with the requirements of s.157 of O. Reg. 213/91.</p> <p style="padding-left: 40px;">(a) for a fixed tower crane installation, the engineer shall confirm that the foundation, and tower crane supports shown on the drawing including, but not limited to, shoring, bracing and tie-ins have been designed and inspected by an engineer;</p> <p style="padding-left: 40px;">(b) for a tower crane installed on a travelling base, the engineer shall verify that the foundation, rail bed, rails and tower crane base support shown on the drawing have been designed and inspected by an engineer in accordance with Part E of this standard.</p> <p>(32) The post-erection report shall identify any deficiencies in the structural components of the tower crane and the engineer shall verify these components</p>	<p>(30) Clarifies sources of reports and engineer’s requirement to request, not just to obtain.</p> <p>(31)(b) added due to the new requirement for inspection performance standards in s.165(3) of O. Reg. 213/91 for travelling base, referred to in Part E.</p> <p>(32) Added for verification of repair by OEM instructions</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>have been repaired to their original equipment manufacturer’s specifications or engineer’s instructions prior to submitting the final report.</p>	
Pages 10-14	<p>2.1 Part A: Inspection Requirements Prior to Use <u>Electrical Components</u> (33) The engineer shall request and obtain a report from the tower crane owner, client or operator who provided inspection findings from a qualified electrician who has carried out a grounding continuity test for both the tower and power supply grounding systems in accordance with the Electrical Safety Code containing:</p> <ul style="list-style-type: none"> (a) the name, qualifications and employing organization of the person completing the test; (b) results of the test; (c) comparison of the test results with standard requirements; (d) identification and calibration details of the test equipment used; and (e) the date the test was completed. <p>(34) The engineer shall request and obtain, prior to the crane being put into service, a report provided by the client or operator of any repairs to electrical components or tests done to the crane since the last time the crane was in operation, including:</p> <ul style="list-style-type: none"> (a) the name, qualifications and employing organization of the person completing the inspection and tests; (b) results of the inspection and tests; (c) comparison of the test results with manufacturer’s specifications; and (d) the date the inspection and tests were completed. 	<p>(33)-(36) is for electrical section only, based on (37)-(39) in 2015 Practice Standard with additional requirements for reports and qualified personnel (qualified electrician, master electrician or qualified technician) and electrical components.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(35) The engineer shall request and obtain a report from a qualified electrician, a master electrician or a qualified technician, and confirm that the report contains the following:</p> <p>(a) the qualifications of all inspection personnel performing these inspections to the engineer for verification;</p> <p>(b) verification of the demarcation point with the local power authority or general contractor;</p> <p>(c) visual inspection of the entire electrical system from the demarcation point or generator to the electrical components on the crane, looking for damage or violations of the Electrical Safety Code and compliance with original equipment manufacturer's specifications;</p> <p>(d) verification that the electrical system was powered up and checked all operating electrical components for vibration and excessive heat, and verification that the components are functioning as intended;</p> <p>(e) verification that the electrical equipment and its components are appropriate for the environment in which it will be operating;</p> <p>(f) verification that each in-use limit switch, overload limit device and any other limiting device specified by the original equipment manufacturer was properly located, set and operating as intended;</p> <p>(g) verification that emergency stops functioned as intended;</p> <p>(h) verification that the tower crane structure was grounded separately from the power system via grounding rods, plates or other means of distributing charge to the earth;</p> <p>(i) verification, if power is supplied by a generator, that the generator was separately grounded in accordance with the Electrical Safety Code and the original equipment manufacturer's instructions;</p> <p>(j) visual check of the control wiring and report damage or improper installation;</p>	<p>(h) Specific description for structure added, to avoid confusion.</p> <p>(j) clarifies that erector must provide the results to the engineer.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(k) visual check of the condition of electronic components; and</p> <p>(l) a statement that the tower crane electrical system complies with the requirements of this practice Standard, CSA Standard Z248-17, OEM specifications, local legislation, and there is no outstanding electrical issue with the tower crane.</p> <p><u>Mechanical Components</u></p> <p>(36) The engineer shall request and obtain a report from a qualified technician and confirm that the report contains the following:</p> <p>(a) the qualification of all inspection personnel performing these inspections to the engineer for verification</p> <p>(b) confirmation that all control levers operate the appropriate function, move smoothly, return to neutral position when released, and are properly identified;</p> <p>(c) verification that calibration of the load moment system (load indicator, angle indicator, height indicator, radius indicator) has been completed;</p> <p>(d) checked the functioning, integrity and condition of limit switches and operator’s controls;</p> <p>(e) visually checked the control wiring and report damage or improper installation;</p> <p>(f) visually checked the condition of electronic components;</p> <p>(g) witnessing of the functional tests for all control components at the extreme limits of use, as described by the original equipment manufacturer or in the most unfavorable position determined by the engineer for these components;</p> <p>(h) recorded in the post-erection report and provided the engineer with the results of the verification and inspection tasks listed in (a) through (g); and</p>	<p>(36)-(41) are carried over from the 2015 Practice Standard section on “Review of Tower Cranes after Erection” with additional requirements for reports and qualified personnel. (qualified technician), reports review from the client.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(g) a statement that the crane mechanical system complies with the requirements of this practice standard, CSA Standard Z248-17, OEM specifications, local legislation, and there is no outstanding mechanical issue with the tower crane.</p> <p>(37) Prior to the load test, the engineer shall request and obtain a report provided by the client that provides inspection findings from a qualified technician on the condition of the mechanical components tested under normal operating conditions, including, but not limited to, motors, gears, brakes, sheaves and bearings, and the engineer shall specifically report occurrences of any of the following:</p> <p>...</p> <p>(39) The engineer shall request and obtain a report provided by the client from the erector or qualified technician who performed the tests on all brake systems appropriate for the crane under review, shall confirm that the results are compliant with the manufacturer's specifications or with CSA Standard Z248-17 and shall record this information in the post-erection test report. The engineer will provide direction to the erector to correct any items found to be deficient in the report.</p> <p>(40) The engineer or person within the engineering firm's organization directed by the engineer shall witness the load test in accordance with original equipment manufacturer's specifications or with CSA Standard Z248-17 performed by the erector and shall include the following information in the post-erection report:</p> <ul style="list-style-type: none"> (a) location of the crane; (b) date the test and subsequent examination was completed; (c) weather conditions at time of test; (d) the configuration of the crane at time of test; (e) the serial number or unique identifying mark of the crane; 	<p>(39)-(40) Specifications to follow in accordance with OEM and CSA Standard Z248-17</p> <p>(f) "Specifications of main block/blocks and the kicker test block" added instead of just "test weight".</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>(f) Specifications of main test block/blocks and the kicker test block used and radii tested;</p> <p>(g) the load test procedure; and</p> <p>(h) details of any defects, unexpected behavior or abnormal deformation observed during or due to testing.</p>	
Page 13-14	<p>2.1 Part A: Inspection Requirements Prior to Use <u>Post-Erection Inspection Written Report</u></p> <p>(41) The engineer shall include the following information in every tower crane post-erection inspection report required by ss. 158 (3) of Ontario Regulation 213/91:</p> <p>(b) make, model and serial number of the tower crane reviewed;</p> <p>...</p> <p>(m) all reports obtained from qualified NDT technicians, qualified technicians, or third parties, including, but not limited to:</p> <ul style="list-style-type: none"> (i) all engineers involved in the inspection; (ii) electrical inspections identified in subsections (33), (34) and (35); (iii) mechanical and controls inspections identified in subsections (36) and (37); and (iv) tower crane erector inspections described in subsections (25), (26), (39) and (40); <p>(n) the qualifications of all inspection personnel performing the inspections that were provided to the engineer for verification;</p> <p>(q) installed configuration of the tower crane, results of functionality tests, and counterweights installed;</p> <p>(s) a statement that the tower crane is ready to be put into service, including confirmation that all components comply with this practice standard, CSA Standard Z248-17 and OEM specifications, are in adequate condition, is ready to put into service with specific limitations, or is not ready to be put into service due to specific deficiencies.</p> <p>(42) The engineer shall provide a copy of the report to the client and shall keep a copy for their records.</p>	<p>(b) Unique serial number provides greater certainty and traceability</p> <p>(m) (i) All engineers involved in the inspection reflects full scope of tower crane inspection of all components now required by subsection 158(1) of O. Reg. 213/91</p> <p>(n) added to increase safety for site personnel</p> <p>(q) added as per MOL recommendation, to make sure this info is recorded, for both forensic reason and technical documentation</p>

Page(s)	Description of Changes	Remark(s)/ Reason
		<p>(s) added to address new requirement for “adequate condition of components”</p> <p>(42) added to clarify recordkeeping</p>
Pages 15-22	<p>2.2 Part B: Annual In-Use Inspections Inspection of in-use Tower Cranes every 12 months</p> <p>ENTIRE PART IS NEW</p>	<p>As now required in paragraphs 1(iii) and 2(ii). of ss. 158 (1) of O. Reg. 213/91, by an engineer or by person(s) directed by the engineer.</p> <p>Notes: Information is based on requirements on Part A, as required, in addition to daily, weekly and monthly inspections, and section 6.4.7 Annual inspections from CSA Z248-17.</p> <p>This inspection is performed on the equipment in the fully assembled, erected operational condition at least once every 12 months or as often as is recommended by the crane manufacturer, whichever is more frequent.</p>
Page 22-23	2.3 Part C: Inspection of Climbing Systems	As required in s.159 of O. Reg. 213/91 by an engineer or

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>The following are prescribed as the Practice Standard with respect to inspection of a tower crane’s climbing system as provided for in s.159 of O. Reg. 213/91 under the <i>Occupational Health and Safety Act</i> by an engineer or by person(s) directed by the engineer. A climbing system must be inspected:</p> <p>(a) prior to the initial climbing operation of the tower crane at the project; and</p> <p>(b) thereafter at intervals not greater than 12 months while the tower crane is erected at a project.</p> <p>Note: The inspection of a climbing system is to be performed in addition to the requirements of Parts A and B, and prior to each use of the climbing system [as also required on ss.159 (1)(b) for climbing system as per CSA Standard Z248-17, section 5.9.8.8 “Climbing section”. The expectation of inspection prior to each use is a higher inspection frequency than those described in annual inspections of Parts A and B above. As such, the requirement for inspection prior to each use may require these components to be inspected more frequently than the annual interval.</p> <p>(1) The engineer shall perform or direct a qualified NDT technician to conduct a visual examination and non-destructive test on areas of concern or representative samples based on visual examination of the climbing system prior to the erection and initial climbing operation of the tower crane at the project.</p> <p>(2) The engineer shall direct a qualified technician to inspect the hydraulic system, including pumps and motors and report any improper or inadequate connections, corroded elements, leaks, hose wear and other deficiencies and the qualified technician shall provide a written report to the engineer.</p> <p>(3) The engineer shall verify that the climbing system used is the one specified by the OEM and shall verify the erector has installed the climber with the parts specified by the original equipment manufacturer or approved by an engineer.</p> <p>...</p> <p><u>Climbing System Inspection Written Report</u></p> <p>(4) Under the requirements, of ss.159(2) of O. Reg. 213/91, the engineer in accordance with subsections (1) through (5) shall prepare a written report for</p>	<p>by person(s) directed by the engineer.</p> <p>(1) and (2) reflect other industry practice to have other industry professional directed to conduct the Climbing Systems inspection. A qualified NDT technician is to conduct a non-destructive test, and qualified technician is to inspect the hydraulic system.</p> <p>(2) Added hydraulic system components as per CSA</p> <p>(3) Based on section (48) from 2015 standard.</p>

Page(s)	Description of Changes	Remark(s)/ Reason
	<p>the crane owner that contains the results of all inspections and provides a statement that the climbing components are ready to be put into service, including confirmation that all components are in adequate condition, ready to put into service with specific limitations, or not ready to be put into service due to specific deficiencies.</p>	<p>(4) New written inspection report requirement as per s. 159(2) of O. Reg. 213/91</p>
Pages 23-29	<p>2.4 Part D: Inspection of Self-Erecting Tower Cranes ENTIRE PART IS NEW</p>	<p>New definition of self-erecting cranes (s.1) and requirement for inspection as per ss. 158(1) paragraph 2 of O. Reg. 213/91</p> <p>Content is based on Part A, which is applicable to Tower Cranes as well. Source for content comes from CSA Z248-17</p>
Page 29-30	<p>2.5 Part E: Inspection of the track foundation and track (of a tower crane mounted on a travelling base) (s. 165(3) of O. Reg. 213/91.) ENTIRE PART IS NEW</p>	<p>New requirement for inspection in accordance with performance standards in s.165(3) of O. Reg. 213/91</p>