



## Labour and Advanced Education

Technical Safety Division  
Crane Operators Section

103 Garland Ave., 3<sup>rd</sup> Floor, Dartmouth N.S., B3B 0K5, [www.gov.ns.ca/lae](http://www.gov.ns.ca/lae)

### **Commentary on Tower Crane Inservice Inspections**

An inspection cannot be successful if you cannot see what you are inspecting. There are two important aspects to a successful inspection: 1) Accessibility, 2) Cleanliness.

The purpose of inspections on tower cranes is to examine the crane structure for inherent or service induced defects. CSA Z248, Code for Tower Cranes, requires a complete inspection be carried out prior to being put into service and again periodically with an extensive reinspection of the entire structure on an annual basis for as long as the crane is standing. Preoperational and annual inspections are required for certification of the crane. The certification must be done by a professional engineer that is competent in the inspection of tower cranes. Other periodic inspections must be done and documented by a competent individual assigned by the owner.

Preoperational and annual inspections must be planned and scheduled by the crane owner. Best practice is to begin the inspection process before the crane is erected. With the crane components on the ground, it is much easier to access the areas/components to be examined. Cleaning the areas to be inspected is critical. At this point the parts should be cleaned to remove dirt, mud, grease, corrosion, loose or damaged paint, etc. It is then the inspector's job to examine the structures visually, looking for defects such as cracks, deformations or other signs of overstress or impact, excessive wear, excessive corrosion, loose fasteners, or pins, etc. Where the examination reveals or suspects a defect, the inspector may then require additional examination using an appropriate method of non-destructive examination. Magnetic Particle Inspection is the most commonly used method. Once the inspections are complete and any defects that have been identified and repaired, and any removed, damaged, or deteriorating coatings have been restored, erection of the crane may begin. Once erected, the inspector should conduct a general reinspection to ensure the crane has been properly installed and that no damage has occurred during the erection process.

The annual inspection, which must take place at twelve-month intervals after the erection date, would follow the same procedures and protocols as the preoperational inspection, except that the crane is now standing. This presents more of a challenge because the inspector is now working at heights. However, the same two principles of a successful inspection still apply: access and cleanliness. With access being more restrictive, the use of cameras, mirrors, or even remote inspection techniques could be considered. Regardless, any suspected defects would still require an appropriate investigation, repair and reinspection, before being returned to service.

Ultimately, it is the responsibility of the crane owner to ensure these inspections are carried out, done properly, documented, and completed by inspectors that are duly qualified and certified in accordance with the requirements of the CSA Z248 code. For the purposes of the Technical Safety Act, owner means any person, firm, corporation or unincorporated body, lessee, agent, syndicate, association, corporation or club that,

- (i) owns, controls, leases, manages or is in possession of property or any part of a property,
- (ii) owns, controls, leases, or manages an activity on a property,
- (iii) owns, controls, leases, manages or is in possession of a device, equipment, system or plant,
- (iv) is in charge of a property, thing or activity,
- (v) in the absence of proof to the contrary, is the person assessed for a property, or
- (vi) is prescribed as an owner by this Act or the regulations.

It is important to understand that the owners of tower cranes, according to the Technical Safety Act, has the responsibility and due diligence to ensure the delivery of technical safety of regulated equipment under their control. Proper inspections and certification is a part of that responsibility and should not be dismissed as an exercise of paperwork. Like other types of heavy equipment used in industry, there are certain risks around tower cranes that need to be taken seriously and mitigated through diligent inspections, maintenance, and repair practices. Nova Scotia's Technical Safety and Occupational Health and Safety Divisions have the responsibility to Nova Scotians to ensure everything that can be done in the name of equipment safety, is being done. Setting expectations and holding owners and operators accountable for equipment safety is one aspect of our oversight responsibilities.

Donald Ehler,

Chief Inspector, Crane Operators  
Technical Safety Division  
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