

# Cranes, Hoists and Lifting Equipment Compliance Game Plan



Five people lost their lives and hundreds of others had to be evacuated as a result of the recent crane collapse at a Kelowna, BC, residential tower construction site. Sadly, these tragedies are far from uncommon. Just 2 days earlier, an 18-foot-tall crane tower came crashing down on a Toronto condo building. Miraculously, nobody died. But the same can't be said of previous crane collapses in Oakville, Ontario and Montreal. Of course, cranes, hoists and lifting devices (which we'll refer to collectively as 'cranes') can also kill when they're erect, such as by contacting power lines, dropping materials on workers below or simply running over those in their path. That's why cranes are subject to detailed [OHS regulations](#). Here are the 7 basic things you must do to comply.

## 1. Ensure Safe Design and Construction

Whether manufactured commercially for off-the-shelf purchase or specifically for a particular company, site or project, cranes must be designed, constructed, erected, maintained, inspected and used in accordance with manufacturer's specification, as well as nongovernmental safety standards specified in the jurisdiction's OHS regulations, which commonly include some version of:

- CSA Z150-98, Safety Code for Mobile Cranes;
- CSA Z248-2004, Code for Tower Cranes;
- CSA Z256, Safety Code for Material Hoists; and
- ANSI/ASME B30.22-2005, Articulating Boom Cranes.

In addition, cranes that aren't commercially made typically must be designed, inspected or certified as safe by a professional engineer before they're first put into use.

## 2. Maintain Load Capacities and Display Load Charts

Every crane has a specified load capacity, that is, maximum size and weight that it can safely lift, depending on the materials it's designed to move. Attempting lifts at above load capacity is highly dangerous and strictly illegal.

**Example:** A 22-year-old worker was crushed when his crane toppled over as he tried to lift more weight than his machine could handle. WorkSafeBC initially fined the employer and prime contractor \$233,000, but the appeals court dropped the fine against the prime contractor and sliced the employer's fine in half [*SNC-Lavalin Constructors (Pacific) Inc. and Rizzani de Eccher*, Govt. News Release, Feb. 23, 2011].

**Bottom Line:** Ensure that the load capacity of the particular crane is clearly and permanently marked either on a plate affixed to the device or waterproof label. If load capacity varies depending on the length or angle of the boom or how the crane is used, the employer must ensure that the load charts showing the rated load capacity for the equipment for all permitted uses and working positions is displayed or kept in the cab or other place where it's readily visible or available to the operator.

## 3. Ensure Cranes Are Properly Inspected

Cranes must be inspected and tested in accordance with

manufacturer's specifications and the requirements of the particular CSA or other required standard for the particular type of equipment by a professional engineer before they're first put into service or structurally modified. The operator must also perform a visual [daily inspection](#) of the crane, rigging, slings and other lifting system components each day before the shift. Inspection by a competent or qualified person is also required:

- After any incident that could potentially have damaged a safety feature or otherwise affected the safe operation of the equipment in any way; and
- At least once a year or other regular basis specified by the manufacturer.

## **4. Ensure Cranes Are Properly Maintained and Repaired**

Cranes maintenance and repair must be carried out in accordance with manufacturer's specifications and the applicable CSA or other standard. If defects that could potentially affecting safe operation are found, the crane must be immediately removed from service and not used again until the problem is properly remedied. Structural repairs or modifications to crane components must be made under the direction of a professional engineer and certified as being at least as safe as the pre-repair condition in terms of materials and workmanship.

## **5. Keep the Right Crane Log Books and Records**

In [most jurisdictions](#), employers must ensure that [log books](#) of each crane are kept and made available to operators, workers and OHS inspectors listing key details about the equipment like:

- How long the crane has been in service;
- Results of daily inspections, checks and tests done on the equipment;
- The date and time of any work or servicing done on it;
- Defects or problems detected and how they were remedied;
- Records of any required certifications;
- Any incidents or situations potentially affecting the crane's safe operation; and
- The signature of the person who enters the log items.

Some jurisdictions also require employers to [review the log books at least once a year](#).

## 6. Ensure Crane Operators Have the Required Training

Employers must ensure that nobody operates a crane unless he/she has the training required by the jurisdiction's OHS regulations. At a minimum, workers must be trained and demonstrate their competency in the device's load capacity and safety features, as well as the hand signals and other safety procedures for its use. For some types of cranes, such as mobile cranes and boom trucks, workers must be not simply competent or qualified but certified and hold a valid certificate to operate the device. And it's not just the operators. Workers who serve as signalers or work near cranes must also be trained on the hazards to which they're exposed, such as the risk of falling or swinging loads, and how to avoid them.

## 7. Ensure Safe Crane Use

Implement written [policies and safety procedures](#) for crane use in accordance with manufacturer's specifications and CSA and other applicable standards covering, at a minimum:

**Load Calculations:** Workers must be able properly [calculate the weight of the load to](#) account for not just the load itself but

also the hook and block and any slings or other lifting attachments. The procedure should also clearly instruct workers not to use any crane whose rated load capacity is less than the calculated load weight. Note that in some jurisdictions, if the load's weight can't be accurately determined, the lifting device used to move it must have a load weight indicator, load limiting device or system that prevents overloads.

**Traffic Signals:** Provide for designating a worker to use proper signals to communicate with the operator if the latter doesn't have a clear and unobstructed view. Signalers should be readily identifiable and visible to the operator and use a designated system of hand signals, or other systems like two-way radios if hand signals aren't practical or safe to use.

**Loads Over Work Areas:** If practicable, establish procedures to ensure that crane loads don't pass over workers. If exposing workers to overhead loads can't be avoided, ensure other measures are in place to protect the workers below, such as the use of audible warning signals.

**Other Crane Safety Practices:** You should also have safe work procedures to ensure that:

- Crane operators don't leave the device unattended when a load is suspended from it;
- Sufficient clearance is maintained from exposed and overhead power lines;
- Tag lines, guide ropes and clamps are used to prevent dangerous loads from moving or shifting;
- Operators keep the load as close to the ground as possible when traveling with it;
- Workers don't ride on a load, hook, rigging or bucket attached to a crane;
- Traffic safety barricades, markings and measures are in place; and
- Cranes aren't used during high winds or other dangerous

weather conditions.