

Ensure crane operators are qualified and competent to operate a specific machine

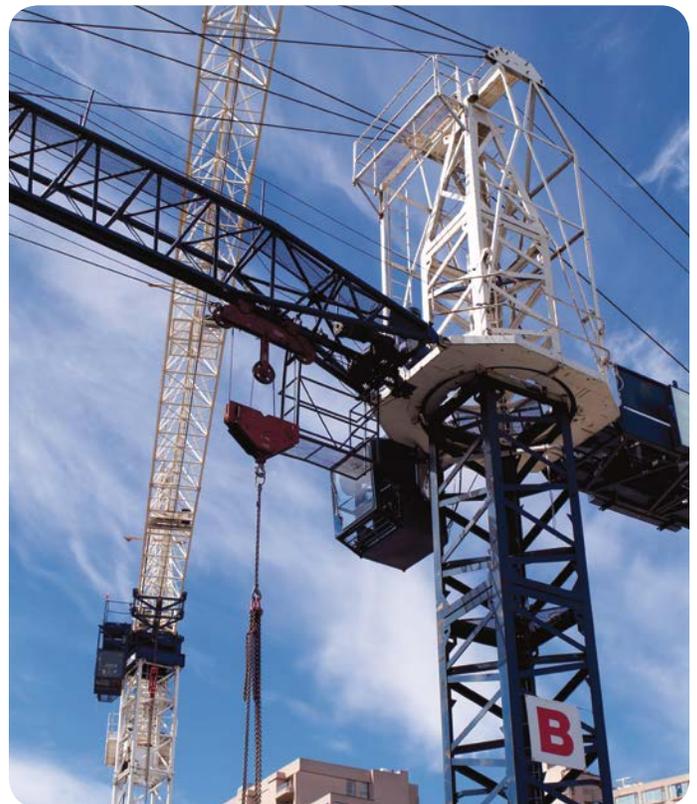
As an employer, you must ensure that crane operators are qualified and competent to use a specific type of equipment before they start work on that machine. Mistakes made by an operator unfamiliar with a crane or following the wrong operating procedures can result in serious incidents. This bulletin examines the factors that contributed to a recent load-failure incident and gives an overview of the competencies that crane operators need to demonstrate.

In recent years, several potentially deadly incidents involving crane load failures have occurred on worksites in British Columbia. Some of these incidents have been linked to the certified operators' lack of experience with the cranes they were using.

Crane operators must be qualified and competent on the specific equipment they use. Being **qualified** means an operator knows the work, the hazards involved, and how to control the hazards. This knowledge can come through education, training, experience, or a combination of these factors. Being qualified also means an operator has been instructed in how to use the specific equipment. Being **competent** means an operator has demonstrated how to safely operate, inspect, and maintain a specific machine.

In one case, an employer hired a certified tower crane operator to operate its tower crane. However, the employer did not require the operator to demonstrate competency before using the crane.

During the operator's second shift, the crane was lifting a 3,992 kg (8,800 lb.) load of concrete. After lifting and slewing the third load, the loaded concrete bucket began to slip uncontrollably



through the hoist drum brake. The bucket plunged downward and struck a site office trailer. No workers were injured, but several were working nearby.

Key factors that contributed to the load failure

An investigation found that the hoist drum brake had become overheated and glazed. This meant the brake was no longer able to slow, stop, and secure the load.

The investigation also found that the operator had previously worked on a tower crane equipped with a frequency drive control system. However, the crane involved in the incident was equipped with a contact control system.

The operator's incorrect understanding and use of the crane's contact control system destroyed the hoist drum brake system and caused the load to fail. Load failures like this one underscore the need for employers to assess and confirm operators' qualifications and competency.

Competencies operators need to demonstrate before operating a crane

As an employer, you must ensure that operators — regardless of their certification level — have received instruction and demonstrated competency on the specific crane they will operate before operating that crane.

For example, the operator must be able to understand the information in the crane operator's manual. Additional competencies include the ability to do the following:

- Identify all potential worksite hazards.
- Assemble and disassemble the crane in accordance with the manufacturer's instructions.
- Determine the net lifting capacity and select appropriate equipment settings to meet lift requirements.
- Use load charts for specific lifting components and equipment configurations.

- Select, configure, and use the controls and control panel, computer, and limiting device functions for specific installed machine components.
- Regularly inspect and maintain equipment components in accordance with the manufacturer's requirements.
- Maintain the equipment log book for maintenance and repair reporting.
- Operate the equipment in a safe, controlled, and smooth manner in accordance with the manufacturer's specifications.
- Use hand signals and radio protocol for hoisting operations.

If your assessment finds any gaps in an operator's knowledge or skills, you must address these gaps through further training and instruction.

During an inspection, a WorkSafeBC officer may ask how you verified that an operator is qualified and has demonstrated competency. Verification may involve a review of records such as competency assessments and operator certification. The extent of documentation expected by the officer would depend on the size and complexity of the equipment.

Regulation requirements

- [Section 14.34, Operator qualifications](#)
- [Guideline G14.34, Operator qualifications and competencies](#)
- [Section 14.34.1, Operator certification](#)

For more information

- [BC Crane Safety](#)