

Managing risk when installing vertical rebar

Installing vertical rebar can be hazardous. In one incident, a vertical rebar cage fell over while two workers were attached to it. In other incidents, workers have fallen from heights while working from vertical rebar cages or been struck by objects falling from higher up on the cage. This bulletin discusses employers' responsibilities to plan the work, identify the hazards, assess the risks, and put safe work practices in place to help prevent similar incidents.

Concrete reinforcing, often referred to as rebar, is found on construction sites throughout B.C. One typical use of rebar is to reinforce vertical concrete elements such as walls, columns, and zones (i.e., columns embedded inside walls).

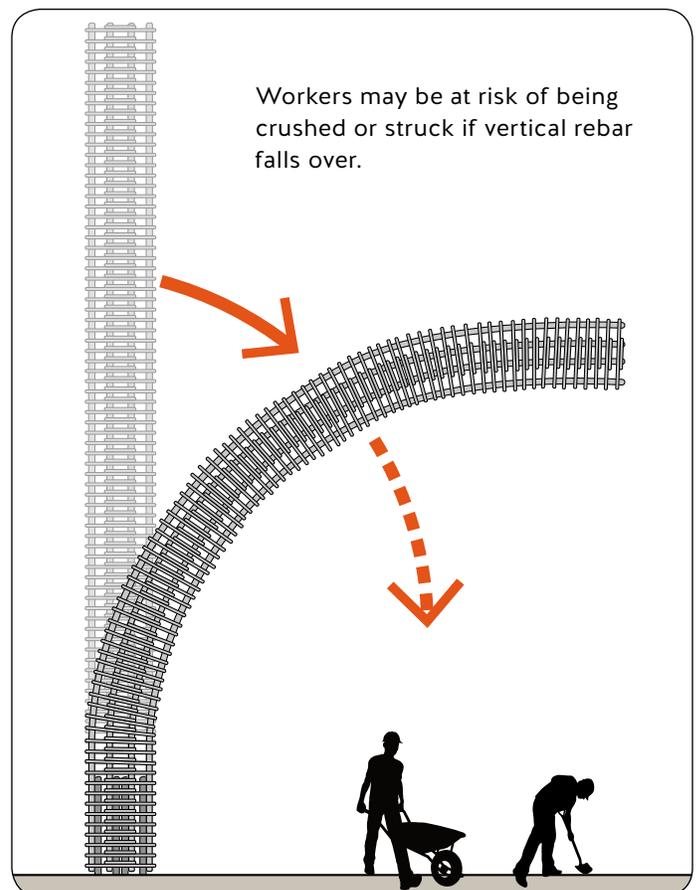
Employers have an obligation to protect workers from the hazards presented by vertical rebar. To meet this obligation, it's important for employers to examine each job task associated with vertical rebar and do the following:

- Identify the hazards.
- Assess the risk for each hazard.
- Select control measures that eliminate or minimize the risk of each hazard.
- Develop and implement safe work practices that include the selected control measures.

What are the hazards?

When installing vertical rebar, workers may be at risk of the following:

- Being crushed or struck if the vertical rebar falls over
- Falling from heights
- Being struck by objects falling from the vertical rebar or work platforms adjacent to the vertical rebar



Installing vertical rebar can involve hazards in addition to those listed at left. To be effective, hazard identification must consider the actual conditions on a particular site and how those conditions will change over time.

What factors affect the risk?

As part of developing a plan to safely install vertical rebar, it's important for employers to assess the risks of the hazards on a site. The following are some examples of factors that can affect the risk of installing vertical rebar:

- The height, weight, and size (i.e., the cage footprint, bar diameter, etc.) of the vertical rebar
- Where the vertical rebar is to be installed
- The stability of the vertical rebar
- The height and location at which the work activities occur
- The condition of the surface that a worker could fall onto
- The quality of the access and working surfaces provided
- The positioning of workers when performing the work activities
- The tools, equipment, and materials used to perform the work activities

What control measures make sense?

The most appropriate control measures for reducing the risks assessed for a particular hazard will depend on the site conditions. Some common controls for addressing the hazards of installing vertical rebar are as follows:

- Minimize the risks associated with vertical rebar hazards before starting work (e.g., use single- or double-lift cages instead of triple-lift cages).
- Laterally support the vertical rebar as necessary to safely withstand any loads likely to be imposed on it. Some examples of lateral supports include guywires, come-alongs, turfers, braces, and/or other supports as per the written instructions of a professional engineer.
- Select the right tools and equipment for working at heights (e.g., work platforms, scaffolds, or elevating work platforms).
- Restrict access to areas below where work is happening at heights.

Generally, climbing and/or working from vertical rebar should be avoided unless other means of work positioning would be more hazardous or are not practicable. (The Occupational Health and Safety Regulation defines *practicable* as “that which is reasonably capable of being done.”)

Safe work practices

Develop and implement site-specific safe work procedures for working with vertical rebar. At a minimum, these procedures should specify the following:

- The types of control measures to be implemented based on the risk assessment performed for the site
- The working surfaces and/or work positioning to be used for each job task
- The fall protection systems to be used, if required, and the procedures for using, maintaining, and inspecting fall protection and work-positioning equipment
- Rescue procedures

Properly instruct, train, and supervise workers on the site-specific safe work procedures.

Regulation requirements

- [Section 20.14, Temporary support](#) (of partially assembled structures or components)
- [Section 20.4, Safe access](#)
- [Section 11.2, Obligation to use fall protection](#)
- [Section 20.9, Protection from falling materials](#)
- [Section 20.25, Concrete placing hazards](#) (guarding protruding ends of reinforcing steel)
- [Section 3.3\(c\), Contents of \(OHS\) program](#)
- [Section 3.5, General requirement](#) (for workplace inspections)
- [Section 4.1, Safe workplace](#)

Workers Compensation Act requirements

- [Section 115, General duties of employers](#)