

Preventing falls from pipe rail trolleys in greenhouses

Between December 2013 and December 2014, there were four serious incidents reported to WorkSafeBC involving falls from pipe rail trolleys. Trolleys can become unstable and tip over while on heating pipe rails. Employers must follow applicable equipment standards or, in the absence of standards or manufacturers' instructions, the requirements of a professional engineer.

What is a pipe rail trolley?

A pipe rail trolley is a narrow-body, movable elevating work platform that typically runs on heated steel pipe rails. The trolleys are used in horticultural or greenhouse activities, including hanging string, inspections, pruning, harvesting, tying up product, and spraying crops.

What are the potential hazards?

WorkSafeBC investigations into the four serious incidents identified several possible causes, which fall into four hazard categories:

1. Equipment instability
2. Overreaching from the trolley
3. Off-centre or mismatched bins
4. Control panel operation errors

1. Equipment instability

Pipe rail trolleys can be unstable while running on the pipe rails. The following are some of the factors that can lead to equipment instability:

- Pipe rail swaying from side to side
- Uneven ground

- Lack of firm foundation (soft, wet ground soil)
- Unsecured pipe rail supports or improper shimming
- Improper pipe rail installation (for example, levelling) or maintenance
- Inadequate pipe rail support spacing
- High platform combined with a heavy load
- Excessive speed
- Moving trolley along the rails while raising or lowering platform

2. Overreaching from the trolley

Overreaching from the trolley can lead to a fall or unbalance the trolley, causing it to tip over. The risk is even greater if a guardrail has not been installed. Guardrails must meet the requirements of section 4.55 of the Occupational Health and Safety Regulation.

3. Off-centre bins

Mismatched harvest bins can easily shift away from the centre of platform. Off-centre harvest bins can shift the weight balance of the platform and lead to tipping.

4. Control panel operation errors

The speed of the trolley depends on the speed setting on the control panel and the available energy in the battery. It can be dangerous if a worker is unaware of the speed setting or the amount of charge in the battery. For example, the speed control might be left at a high setting when the battery is low at the end of the day. The battery could be fully recharged the next morning with the speed setting still remaining on high. It's important to test the speed setting before using the trolley again.

Another potential hazard involves the second set of wheels that some trolleys are equipped with. If the control or lever for the second set of wheels is positioned where a worker could accidentally bump it, the wheels could be inadvertently lowered while the trolley is on the pipe rails, which will derail the trolley.

Types of trolleys

There are various equipment manufacturers making several different designs of trolleys for the greenhouse industry. These designs include fixed-height work platforms, manually raised work platforms, and hydraulically raised work platforms. They may be equipped with:

- Anywhere from one to four scissors
- Outriggers
- A second set of wheels

Employer requirements

Following these requirements will help you keep your workers safe from injury.

As an employer, you must ensure that your trolleys and their intended usage have been designed to an applicable CSA or ANSI standard that was in effect when the equipment was manufactured, or to another standard acceptable to WorkSafeBC. Since many manufacturers are European, the equipment may comply with a European standard. You must get WorkSafeBC approval if your system follows standards other than an applicable CSA or ANSI standard. Contact the manufacturer and ask about standards.

If there is no applicable standard, you must ensure your trolley equipment meets and is used in accordance with the requirements of a professional engineer, as specified in section 13.2(1)(c) of the Regulation. You may be required to take immediate corrective measures, as specified by a professional engineer, to ensure your trolleys are safe to operate.

Employers must also ensure that trolley equipment is installed, inspected, tested, repaired, and maintained in accordance with the manufacturer's instructions and any standards the equipment is required to meet, or as specified by a professional engineer.

If the manufacturer's instructions do not provide adequate installation instructions (for example, taking into account ground requirements, rail support spacing, and pipe rail undulation), you must hire a professional engineer to determine the specifications for installation.

If a trolley has been modified (for example, by extending its length or height, or relocating controls) you must ensure the modifications meet the manufacturer's specifications, if available, or as specified by a professional engineer.

In addition, you need to ensure your workers are trained, supervised, and competent to perform tasks while working from a trolley.

There are a number of other regulatory obligations that employers have regarding pipe rail trolleys, including the following sections from the Regulation:

- Section 4.8, Rated capacity
- Section 13.3, Inspections
- Section 13.24, Work platforms on wheels
- Section 13.25, Warning devices on elevating work platforms
- Section 13.26, Controls on elevating work platforms
- Section 13.33, Fall protection

For more information

If you have questions about the safety of your system, contact WorkSafeBC or FARSHA. If you need help contacting a professional engineer, talk to FARSHA.

Employers must immediately notify WorkSafeBC of any accident that results in serious injury to or the death of a worker. A WorkSafeBC prevention officer will contact you to gather information about the incident and help your farm prevent the incident from recurring.

WorkSafeBC

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