

## PART 14

### FALL PROTECTION

#### Application

14.1(1) This Part applies to every workplace where there is a risk of a worker falling

- (a) a vertical distance of 3 m or more;
- (b) a vertical distance of less than 3 m where there is an increased risk of injury due to the surface or item on which the worker might land;
- (c) into operating machinery or moving parts of the machinery;
- (d) into water or another liquid;
- (e) into or onto a hazardous substance or object;
- (f) through an opening on a work surface; or
- (g) a vertical distance of more than 1.2 m from an area used as a path for a wheelbarrow or similar equipment.

14.1(2) Repealed.

## Safe work procedures

14.2(1) An employer must

- (a) develop and implement safe work procedures to prevent falls at the workplace;
- (b) train workers in the safe work procedures; and
- (c) ensure that workers comply with the safe work procedures.

14.2(2) The safe work procedures must identify the fall hazards at the workplace and set out the measures that will be used to prevent falls at the workplace.

14.2(3) When this Part requires the use of a guardrail system or fall protection system at a workplace, the safe work procedures must address the following issues:

- (a) the location of each guardrail system or fall protection system to be used at the workplace;
- (b) the procedures used to assemble, maintain, inspect, use and disassemble a fall protection system;
- (c) where applicable, the rescue procedures to be used for rescuing a worker after a fall has been arrested.

## GUARDRAIL SYSTEMS

### Guardrail system requirements

14.3 Subject to section 14.6, an employer must ensure that a guardrail system is used where there is a risk of a worker falling in any of the circumstances set out in subsection 14.1(1).

### Guardrail requirements

14.4(1) An employer must ensure that a guardrail

(a) is at least 900 mm high and not more than 1,060 mm above the working surface, with an intermediate rail at between 450 and 530 mm above the working surface; and

(b) is constructed and secured to resist a static load of 900 N in any direction in which the load may be applied at any point on the top rail and on any intermediate rail.

14.4(2) A guardrail must have a toe board securely fastened to the posts and extending from the surface of the working area to a height of at least 125 mm when there is a risk of falling objects.

14.4(3) If a guardrail is made from wood, it must

(a) be free from splinters and protruding nails; and

(b) have a top and mid rail of at least 38 mm × 89 mm securely supported on posts of at least 38 mm × 89 mm and spaced at not more than 2.4 m.

### Temporary guardrail removal

14.5 An employer may temporarily remove a guardrail when it is necessary to do so to facilitate work in the immediate area. The employer must ensure that any worker in the area uses a fall protection system while the guardrail is removed.

## FALL PROTECTION SYSTEMS

### Fall protection systems

14.6 When the use of a guardrail system is not reasonably practicable or would not be effective, an employer must ensure that the worker is protected by at least one of the following fall protection systems:

- (a) a travel restraint system;
- (b) a fall arrest system;
- (c) a safety net;
- (d) another fall protection system approved by the director.

### Requirements for fall protection systems

14.7(1) An employer must ensure that a fall protection system

(a) is designed, installed, tested, used and maintained in accordance with the applicable requirements of the following standards:

- (i) CSA Standard Z259.1-05, *Body Belts and Saddles for Work Positioning and Travel Restraint*,

(ii) CAN/CSA Standard Z259.2.1-98 (R2004), *Fall Arresters, Vertical Lifelines, and Rails,*

(iii) CAN/CSA Standard Z259.2.2-98 (R2004), *Self-Retracting Devices for Personal Fall-Arrest Systems,*

(iv) CSA Standard Z259.2.3-99 (R2004), *Descent Control Devices,*

(v) CSA Standard Z259.10-06, *Full Body Harnesses,*

(vi) CSA Standard Z259.11-05, *Energy Absorbers and Lanyards,*

(vii) CAN/CSA Standard Z259.12-01 (R2006), *Connecting Components for Personal Fall Arrest Systems (PFAS),*

(viii) CSA Standard Z259.16-04, *Design of Active Fall-Protection Systems,*

(ix) CSA Standard Z259.13-04, *Flexible Horizontal Lifeline Systems,*

(x) ANSI Standard 10.11-1989 (R1998), *Personnel & Debris Nets for Construction & Demolition Operations — Safety Requirements for Personnel and Debris Nets — American National Standard for Construction and Demolition Operations;*

(b) designed and certified as safe by a professional engineer and installed, tested, used and maintained in accordance with the specifications certified by the professional engineer.

14.7(2) Despite the reference to safety belts in CSA Standard Z259.1-05, *Body Belts and Saddles for Work Positioning and Travel Restraint*, an employer must ensure that a safety belt is not used as part of a fall protection system at the workplace.

#### Inspection and maintenance

14.8(1) An employer must ensure that the equipment used as part of a fall protection system is

(a) inspected before use on each work shift by

(i) subject to subsection (2), the worker who uses the fall protection system, or(ii) a competent person other than the worker using the system;

(b) kept free from any substance or condition that could contribute to deterioration of the equipment; and

(c) maintained in good working order and in accordance with the manufacturer's specifications.

14.8(2) When a safety net is used, the net must be inspected by a competent person before each work shift.

#### Inspection after fall arrest

14.9 After a fall protection system has arrested the fall of a worker, an employer must ensure that the system is not returned to service until it has been inspected and certified as safe by the manufacturer or a professional engineer.

#### Defective components

14.10 When a component of a fall protection system is defective in condition or

function, an employer must not use the component and must immediately remove it from service and either return it to the manufacturer to be repaired or replaced or destroy it.

## Training

14.11 An employer must ensure that a worker using a fall protection system is trained in its use, care and inspection by a competent person.

## Travel restraint systems

14.12 When a travel restraint system is used, an employer must ensure that

(a) the travel restraint system consists of a full body harness with adequate attachment points;

(b) the full body harness is attached by a lifeline or lanyard to a fixed support that meets the requirements of section 14.14 (fixed support system requirements); and

(c) the length of the lifeline or the lanyard is selected so that the worker can only proceed to within one metre of an opening or edge.

## Fall arrest systems

14.13(1) When a fall arrest system is used, an employer must ensure that the system

(a) consists of a full body harness with adequate attachment points;

(b) is attached by a lifeline or lanyard to an independent fixed support that meets the requirements of subsection 14.14(1);

(c) is designed in accordance with CSA Standard Z259.16-04, *Design of Active Fall-Protection Systems* and CSA Standard Z259.13-04, *Flexible Horizontal Lifeline*

*Systems*; (d) is manufactured so that a worker's free fall distance does not exceed 1.2 m excluding the increase in the total fall distance resulting from the use of shock absorbers; and

(e) is arranged so that a worker cannot

(i) hit the ground or an object or level below the work, or

(ii) swing in a manner that poses a risk to the safety or health of a worker.

14.13(2) When a lanyard referred to in clause (1)(b) is equipped with a shock absorber or other similar device, the shock absorber or device must comply with CSA Standard Z259.11-05, *Energy Absorbers and Lanyards*.

14.13(3) An employer must ensure that a fall arrest system does not include a shock absorber if wearing or using one could cause a worker to hit the ground or an object or level below the work.

14.13(4) An employer must ensure that the fall arrest system does not subject a worker who falls to a peak dynamic fall arrest force greater than 8 kN.

#### **Fixed support system requirements**

14.14(1) The owner of a building or structure must ensure that a permanent anchorage system used as the fixed support in a travel restraint system or fall arrest system for that building meets the following requirements:

(a) the anchor has an ultimate capacity of at least 22.2 kN in any direction in which the load may be applied for each worker attached;



(b) the anchorage system is certified by a professional engineer as having the required load capacity;

(c) where the anchorage system is used in conjunction with a suspended work platform, the system is designed, constructed and used in accordance with CAN/CSA Standard-Z91-02, *Health and Safety Code for Suspended Equipment Operations* and CAN/CSA-Z271-98 (R2004), *Safety Code for Suspended Elevating Platforms*.

14.14(2) When a permanent anchorage system cannot be used at a workplace, an employer must ensure that the temporary fixed support in a travel restraint system or fall arrest system meets the following requirements:

(a) when a fall arrest system without a shock absorber is used, a support used in a fall arrest system must be capable of supporting a static force of at least 8 kN without exceeding the allowable unit stress for each material used in the fabrication of the anchor point;

(b) when a shock absorber is used in a fall arrest system, the support must be capable of supporting a static force of at least 6 kN without exceeding the allowable unit stress for each material used in the fabrication of the anchor point;

(c) a support used in a travel restraint system must be capable of supporting a static force of at least 2 kN without exceeding the allowable unit stress for each material used in the fabrication of the anchor point.

#### No sharp edges

14.15 An employer must ensure that no component of a travel restraint system or a fall arrest system comes into contact with a sharp edge that could cut, chafe or abrade any component of the system.

### **Fall arrest systems and powered mobile equipment**

14.16 When a fall arrest system is used on powered mobile equipment, an employer must ensure that the system is attached to an anchor in accordance with the specifications of the manufacturer of the powered mobile equipment.

### **Fall protection on vehicles**

14.17 When a worker may have to climb on a vehicle or its load at any location other than a garage, warehouse or other permanent facility and it is not reasonably practicable to provide a fall protection system for the worker, an employer must

(a) take steps to eliminate or reduce the need for a worker to climb onto the vehicle or its load; and

(b) provide information, instruction and training to a worker on safe work procedures for climbing or working on the vehicle or its load.

### **Full body harness**

14.18 When a worker uses a full body harness, an employer must ensure that

(a) the full-body harness and connecting linkage are used, maintained, adjusted and stored in accordance with the manufacturer's specifications; and

(b) the full-body harness is properly fitted to the worker.

### **Lanyards**

14.19 When a worker uses a lanyard, an employer must ensure that the lanyard is

(a) as short as work conditions permit;

- (b) equipped with suitable snap hooks;
- (c) free of imperfections, knots and splices, other than end terminations;
- (d) protected by padding where it passes over sharp edges;
- (e) protected from heat, flame, abrasive or corrosive materials during use;
- (f) used, maintained, adjusted and stored in accordance with the manufacturer's specifications; and
- (g) used by only one worker at a time.

#### **Lifeline requirements**

**14.20** When a worker uses a lifeline, an employer must ensure that the lifeline is

- (a) suitable for the conditions in which the lifeline is to be used, having regard to factors including strength, abrasion resistance, extensibility and chemical stability;
- (b) free of imperfections, knots and splices, other than end terminations;
- (c) protected by padding where the lifeline passes over sharp edges;
- (d) protected from heat, flame, abrasive or corrosive materials during use;
- (e) fastened to a secure anchor point or anchor points as required under this Part; and
- (f) installed, used and maintained in accordance with the manufacturer's specifications or specifications certified by a professional engineer.

## Vertical lifelines

14.21 When a worker uses a vertical lifeline, an employer must ensure that

(a) the lower end of the vertical lifeline extends to the ground or to a safe landing;  
and

(b) the vertical lifeline is protected at the lower end to ensure that the line cannot be fouled by equipment.

## Horizontal lifelines

14.22(1) When a worker uses a horizontal lifeline system, an employer must ensure that the specifications for the system are kept at the worksite and are readily accessible by a worker.

14.22(2) The specifications for a horizontal lifeline system must address the following issues:

(a) the arrangement of the system, including the anchorage or fixed support system;

(b) the components used;

(c) the number of workers that can safely be attached to it;

(d) the instructions for installation or erection;

(e) the maximum load capacity of the system.

14.22(3) When a permanent horizontal lifeline system from a manufacturer is installed at a workplace, an employer must ensure that, before the system is put into use, the system

is certified as being properly installed according to the manufacturer's specifications by one of the following:

- (a) the manufacturer;
- (b) a person authorized by the manufacturer;
- (c) a professional engineer.

**14.22(4)** When a permanent horizontal lifeline system designed by a professional engineer is installed at a workplace, the employer must ensure that, before the system is put into use, the system is certified as being properly installed according to the engineer's specifications by a professional engineer.

#### **Inspection and testing of safety nets**

**14.23(1)** When a safety net is used, an employer must ensure that a professional engineer or a competent person under a professional engineer's supervision inspects and tests the installation of the safety net before it is put in service.

**14.23(2)** An employer must ensure that the safety net

- (a) is installed not more than 7.70 m below the work area; and
- (b) extends at least 2.5 m on all sides beyond the work area.

## RESIDENTIAL CONSTRUCTION

### Erection of second floor exterior wall

14.24(1) When a worker is required to erect a second floor exterior wall on a residential construction project in circumstances where it is not reasonably practicable to provide a fall protection system for the worker, an employer must ensure that an alternate safe work procedure is implemented to protect the safety and health of the worker.

14.24(2) A safe work procedure implemented under subsection (1) must offer protection to the worker that is equal or greater to the protection provided by a fall protection system that meets the requirements of this Part.

### Installation of wood trusses

14.25(1) When a worker is required to install wood trusses on a residential construction project in circumstances where it is not reasonably practicable to provide a fall protection system for the worker before the installation of roof sheeting, an employer must ensure that an alternate safe work procedure is implemented to protect the safety and health of the worker.

14.25(2) A safe work procedure implemented under subsection (1) must

(a) ensure that no work is performed by a worker while standing on the top plate of the exterior walls of the structure; and

(b) offer protection to the worker that is equal or greater to the protection provided by a fall protection system that meets the requirements of this Part.

### Training and compliance

14.26 When an employer implements an alternate safe work procedure under section 14.24 or 14.25, the employer must

(a) provide information, instruction and training on the safe work procedures to workers; and

(b) ensure that workers comply with the safe work procedures.

## BUILDING REQUIREMENTS

### Required roof protection

14.27(1) The owner of a building that is more than five storeys tall or 15 m in height that is constructed after the coming into force of this regulation must either

(a) provide a permanent perimeter guardrail system that meets the requirements of this Part; or

(b) provide roof-level protection consisting of

(i) a continuous parapet or fencing not less than 900 mm in height, or

(ii) a system of lifeline anchors with one anchor set back a minimum of 3 m from the edge of the roof for every six linear metres of unprotected roof edge.

14.27(2) When roof-level protection on a building consists of a system of lifeline anchors, the owner of the building must ensure that

(a) each lifeline anchor is

(i) capable of resisting a force of 22.2 kN in any direction in which the load may be applied for each worker attached, and

(ii) made of stainless steel or other material resistant to corrosion;

(b) the anchorage system is certified by a professional engineer as having the required load capacity; and

(c) where an eyebolt is used as an anchor, that the interior opening of the eye measures at least 38 mm.

#### **Steel frame building requirements**

14.28 During the construction of a steel frame building, the owner of the building and the prime contractor responsible for the construction of the building must ensure that the structural components of the building designed to accommodate a fall protection system(a) are designed, approved and certified as safe by a professional engineer; and

(b) include

(i) double connections at each column and at beam webs over a column,

(ii) at least four anchor bolts per column, and

(iii) perimeter columns that extend at least one metre above the finished floor to permit the installation of perimeter safety cables.

#### **Definition: "anchor"**

14.29 In this Part, "anchor" means a secure point of attachment for a lifeline or lanyard.