

CSA-Z259.13-04 (Flexible Horizontal Lifeline Systems)

This document contains extracts from the CSA-Z259.13-04. Standard relating to horizontal lifeline fall protection systems. This is the first edition of CSA Z259.13, *Flexible horizontal lifeline systems*. It is part of the Z259 series of Standards for components of personal fall-arrest systems.

The purpose of this Standard is to specify requirements related to the performance, design, testing, labeling, and provision of instructions for every element of flexible horizontal lifeline systems, including every element of the system from anchorage connector to anchorage connector, it does not, however, cover anchorages or anchor design.

This Standard was prepared by the Technical Committee on Fall Protection, under the Jurisdiction of the Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee. It will be submitted to the Standards Council of Canada for approval as a National Standard of Canada.

PARAGRAPH REFERENCE	REQUIREMENT
FScope 1.1	This Standard specifies requirements related to the performance, design, testing, labeling, and provision of instructions for pre-engineered flexible horizontal lifeline systems (FHLSs) for the attachment of personal protective equipment for protection against falls from a height. These systems are used for arresting falls and may be used for work positioning and travel restraint.
Minimum Strength Requirement 4.4	The minimum strength of a newly assembled FHLS shall be at least twice the anticipated MAL when the system is installed and used in accordance with the manufacturer's instructions. The minimum strength shall be verified by the test procedures described in Clause 7.3. An FHLS should not be used under conditions that could diminish the strength of the system, such as with worn, broken, missing, altered, or corroded components, or after the system has arrested a fall or been exposed to the forces equivalent to those created by arresting a fall.
End Anchorage Strength Requirement 4.5	The manufacturer of an FHLS shall provide data on maximum arrest loads (MALs) to enable the certification organization to accurately assess the minimum strength requirements for the end anchorages. Each end anchorage shall be rated at a minimum strength at least twice the MAL in the direction of intended loading when the FHLS is installed and used in accordance with the manufacturer's instructions.
Minimum Clearance Requirement 4.6	An FHLS shall be designed, tested, and installed in a manner that will provide adequate clearance in the potential path of a fall for those foreseeable conditions of use intended by the manufacturer of the system. FHLS manufacturers shall give FHLS owners data that is sufficient for accurately assessing the minimum clearance required for each FHLS configuration when the system is installed and used in accordance with the manufacturer's instructions (including a safety margin of 1 m (3.3 ft or more).
Wire Rope Lines 5.2.1	The minimum breaking strength of a terminated wire rope shall be at least twice the MAL but not less than 28.9 kN (6500 lbf). The minimum rope diameter shall be 8 mm (5/16 in). Wire rope lines shall comply with CSA G4.

In-Line Fittings 5.2.4	<p>The minimum breaking strength of all in-line fittings shall be at least twice the MAL but not less than 22.2 kN (5000 lbf). Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists.</p>
Horizontal Life Energy Absorbers 5.2.5.1	<p>The minimum breaking strength of a horizontal lifeline energy absorber at maximum extension shall be at least twice the MAL but not less than 22.2 kN (5000 lbf).</p>
Intermediate Anchorage Connectors 5.3.2	<p>Every intermediate anchorage connector and its related hardware shall be designed to</p> <ul style="list-style-type: none"> (a) allow the line to pass through the connector aperture; and (b) resist and transfer to the intermediate anchorage a minimum load of 4.0 kN (900 lbf) for each worker permitted on the system, but not less than 16.0 kN (3600 lbf) in all potential directions of loading.
Mobile Attachment Devices 5.5	<p>Mobile attachment devices shall</p> <ul style="list-style-type: none"> (a) be capable of resisting a static force of 16.0 kN (3600 lbf); and (b) be either <ul style="list-style-type: none"> (i) impossible for workers to remove from the lifeline; or (ii) removable only by two consecutive deliberate actions. <p>The manufacturer shall supply specific instructions for the inspection of all the wear elements of the mobile attachment device. Pulleys, snap hooks, and carabiners should be selected for both the suitability of the material from which they are made and the thickness of material to resist wear from frequent travelling along the lifeline. The finish on these devices should be such as not to damage the line or fittings.</p> <p>The instructions for systems installed by the manufacturer or by an installer authorized by the manufacturer shall contain the same information as is provided for systems supplied in kit form, except that a bill of material shall be supplied in place of a complete list of kit components</p>
Instructions 8.3.1	<p>Essentially, clear instructions in both English and French shall be supplied. The following shall be included in the instructions:</p> <ul style="list-style-type: none"> (a) the required end anchorage strength and stiffness; (b) the required intermediate anchorage strength and stiffness; (c) the recommended height above the platform for installation of the horizontal lifeline; (d) a method for determining the configurations in which the system may be used; (e) a method for determining, setting, adjusting, and checking the specified line tension; (f) a method for determining the required minimum clearances; (g) the maximum number of workers allowed to be on the system at one time, and where they shall be positioned on the system (this is especially important in cases where the number of allowable workers on the same span is different from the total recommended number of workers); (h) the specifications of the appropriate connecting subsystems; (i) instructions for workers for maintaining continuous attachment to the system (including an instruction that mobile attachment devices should be removed from the lifeline only in a safe area such as an entry/exit point); (j) appropriate warnings concerning environments that pose a hazard, as well as guidelines for selecting environments that are suitable for use; (k) a warning that if a fall occurs or an inspection reveals an unsafe condition, the system is to be taken out of service until an inspector authorized by the manufacturer or the manufacturer's representative can determine whether the system is safe for continued use; (l) the recommended maintenance and inspection procedure; (m) a warning that only suitably trained people should be allowed to use the system; (n) a warning against alterations or additions to the system without the manufacturer's prior written consent; (o) a complete list of the contents of the system provided by the manufacturer at the time of sale; (p) a warning to inspect the system before each use; and (q) a recommendation that a plan be put in place and the means be at hand for prompt rescue of workers following a fall arrest occurrence, including any use of the FHLS in effecting the rescue.

Labeling
8.2.2

The labeling for systems installed by the manufacturer or by an installer authorized by the manufacturer shall contain the same information as is provided for systems in kit form, except that the name, address, and telephone number of the installer shall be supplied in addition to the name, address, and telephone number of the manufacturer.

Essentially the following information, in both English and French, shall be indelibly marked on labels permanently attached at the intended entry points or at one end of the lifeline:

- (a) the manufacturer's name, address, and telephone number;
- (b) the year of manufacture;
- (c) the serial number, if applicable;
- (d) the mark of a certification organization accredited by the Standards Council of Canada indicating that the system conforms to this Standard;
- (e) the required end anchorage strength;
- (f) the required intermediate anchorage strength;
- (g) a method for determining the required minimum clearances;
- (h) the maximum number of workers allowed to be on the system at one time, and where they shall be positioned on the system;
- (i) the specifications of the appropriate connecting subsystems;
- (j) appropriate warnings concerning environments that pose a hazard, as well as guidelines for selecting environments that are suitable for use;
- (k) a warning that if a fall occurs or an inspection reveals an unsafe condition, the system is to be taken out of service until an inspection authorized by the manufacturer or the manufacturer's representative can determine whether the system is safe for continued use;
- (l) the recommended maintenance and inspection procedure;
- (m) a warning that only suitably trained workers should be allowed to use the system;
- (n) a warning against alterations or additions to the system without the manufacturer's prior written consent;
- (o) a warning to inspect the system before each use;
- (p) the permissible direction of loading on the system; and
- (q) a recommendation that a plan be put in place and the means be at hand for prompt rescue of workers following a fall arrest occurrence, including any use of the FHLS in effecting the rescue.