

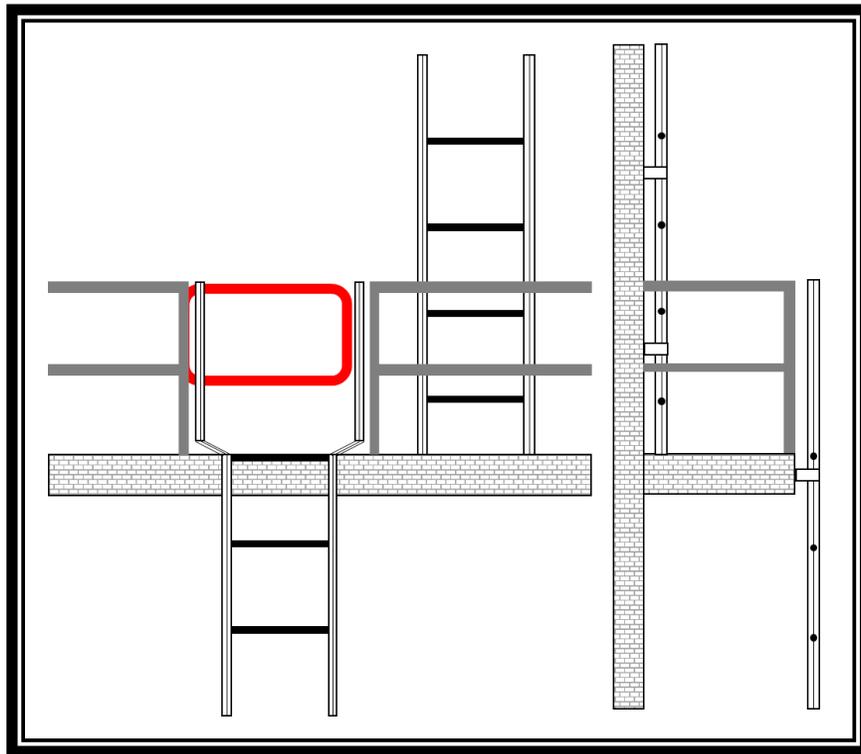
Ergo2.0 Mine

Fixed Ladder Checklist



Centers for Disease Control
and Prevention
National Institute for Occupational
Safety and Health

Fixed Ladder Checklist



This checklist assesses slip, trip, and fall hazards on fixed ladders. These hazards may be due to the design of the fixed ladder or issues due to maintenance and upkeep or housekeeping. Some conditions may require the ladder to be removed from service. The checklist is divided into eight sections including general, maintenance, design, clearance, rungs, rails and handholds, and landings, and long ladders.

Fixed Ladder Checklist Instructions

This checklist package contains four documents. Three documents are necessary to conduct the audit. The third is optional and can be used as needed or when assessing multiple fixed ladders. A description and intended use of each document is provided below.

1. **Fixed Ladder Information Page** – This document is required and allows the audit user to record pertinent information to be filed with the audit results and recommendations. A separate Fixed Ladder Information Page should be used for each location and time when assessing multiple location or at multiple times.
2. **Fixed Ladder Checklist Answer Sheet** – This document is optional and can be used to record responses to the checklist items, thereby allowing the user to reuse the Fixed Ladder Checklist document multiple times without the need for additional copies of the checklist items. A separate Fixed Ladder Checklist Answer Sheet should be used for each location and time when assessing multiple location or at multiple times.
3. **Fixed Ladder Checklist** – This document is required and contains all the checklist items and should be used to access the fixed ladder. The checklist is divided into eight sections including general, maintenance, design, clearance, rungs, rails and handholds, and landings, and long ladders. To complete this checklist, you will need a tape measure and an inclinometer (or the built-in inclinometer on your smart device). A separate Fixed Ladder Checklist should be used for each fixed ladder audited if the Fixed Ladder Checklist Answer Sheet is not used.

4. **Fixed Ladder Recommendations** – This document is required and contains all the recommendations for the checklist items. Each recommendation corresponds to the answer “yes” for that item on the Fixed Ladder Checklist or the Fixed Ladder Checklist Answer Sheet.

Fixed Ladder Checklist Table of Contents

Fixed Ladder Information Sheet Page 1

Fixed Ladder Checklist Answer Sheet Page 2

Fixed Ladder Checklist Page 3

Fixed Ladder Recommendations Page 14

Fixed Ladder Information Sheet

Name of Auditor: _____

Location: _____

Date: _____

Time: _____:_____ AM / PM

Operational status of mine: In operation / Not in operation

Brief description of the environment at the location of this fixed ladder (Ex.: wet, dry, inside, outside, transitional area):

Comments:

Fixed Ladder Checklist Answer Sheet

General

1.1 _____

1.2 _____

Maintenance

2.1 _____

2.2 _____

2.3 _____

2.4 _____

2.5 _____

Design

3.1 _____

3.2 _____

Clearance

4.1 _____

4.2 _____

4.3 _____

4.4 _____

4.5 _____

Rungs

5.1 _____

5.2 _____

5.3 _____

5.4 _____

5.5 _____

5.6 _____

5.7 _____

5.8 _____

5.9 _____

Rails and Handholds

6.1 _____

6.2 _____

6.3 _____

6.4 _____

6.5 _____

6.6 _____

Landings

7.1 _____

7.2 _____

7.3 _____

7.4 _____

7.5 _____

7.6 _____

7.7 _____

Long ladders (30 feet or more in length)

8.1 _____

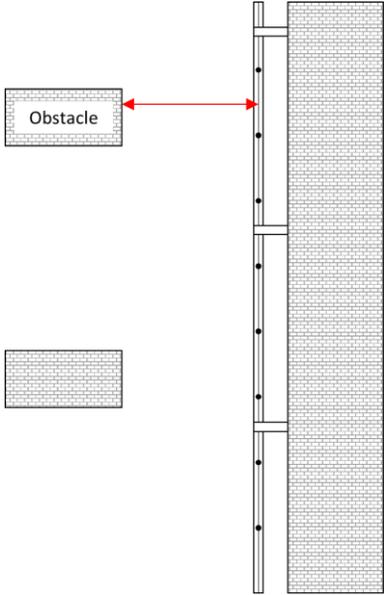
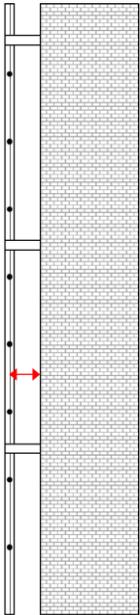
8.2 _____

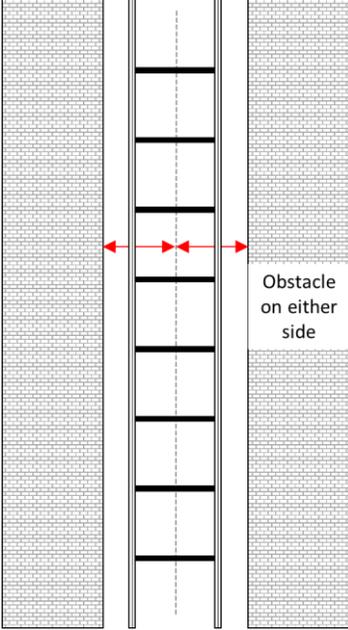
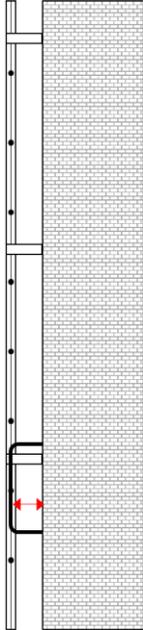
8.3 _____

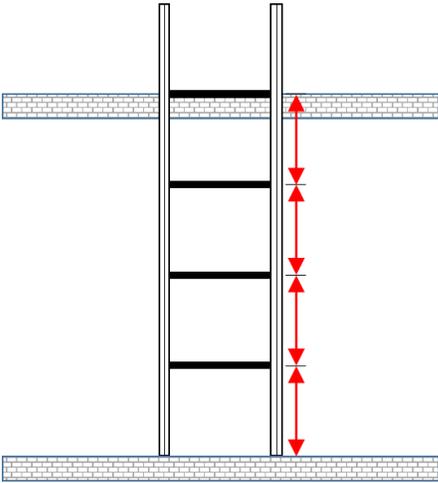
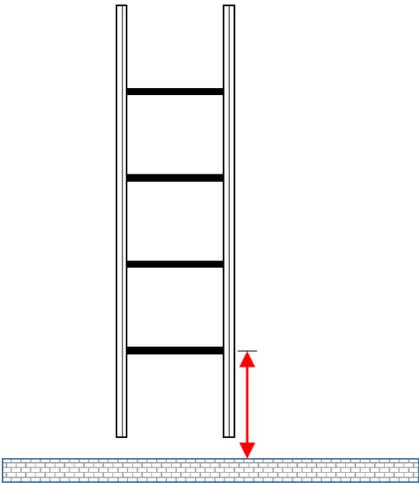
8.4 _____

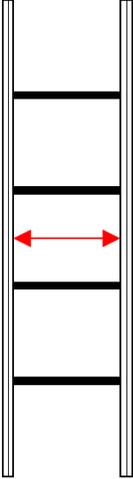
Fixed Ladder Checklist

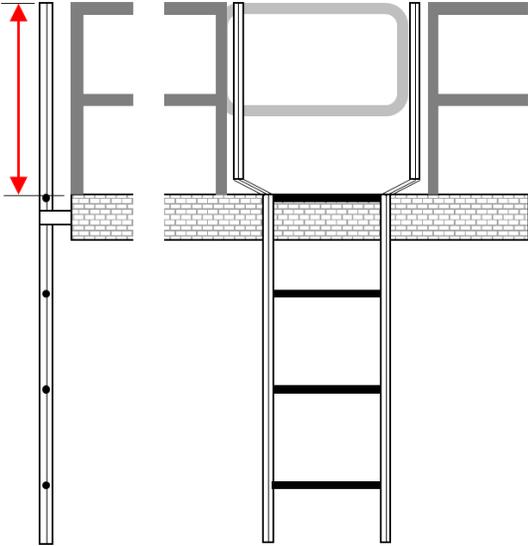
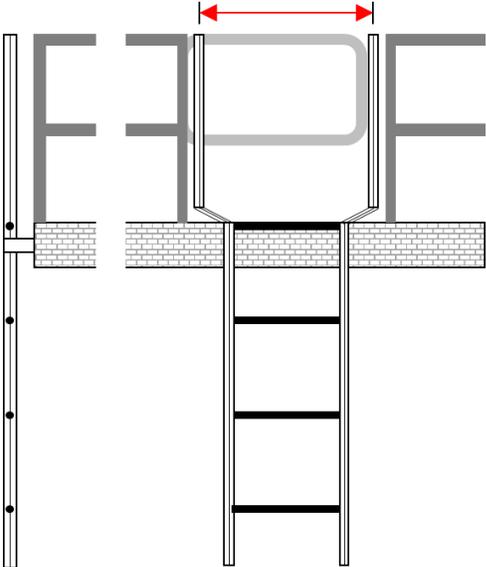
Category	Select all conditions present	X = Yes
General	1.1 Mine workers regularly (daily or at each shift) use this ladder.	
	1.2 Tools and equipment are normally carried when using this ladder.	
Maintenance	2.1 Ladder moves, shakes, or is not anchored securely.	
	2.2 Ladder rungs or rails have slipping hazard(s): oil, grease, ice, snow, other.	
	2.3 There is spillage or debris on the landing or around the top or bottom of the ladder.	
	2.4 Ladder rungs or rails have protrusions, burrs, or sharp edges.	
	2.5 There is rust on metal ladders.	
Design	3.1 Pitch/angle/inclination of the ladder is less than 70° or greater than 90°. <div style="text-align: center; margin-top: 10px;"> </div>	
	3.2 A single rail ladder is used.	

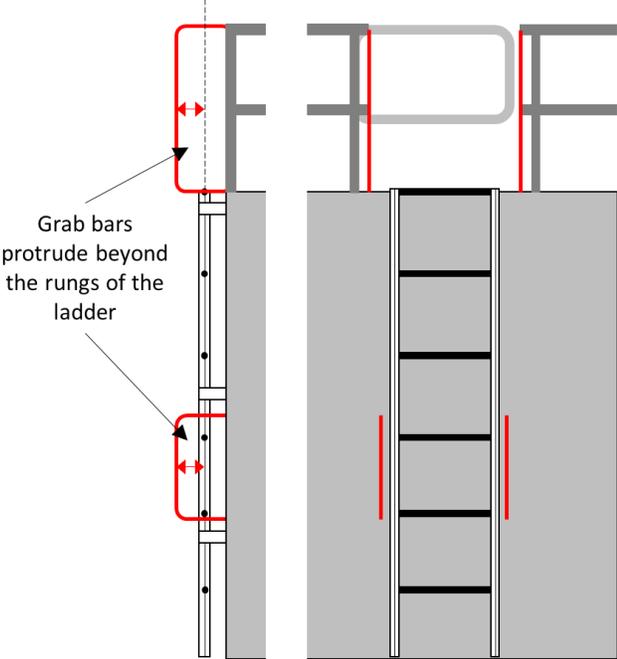
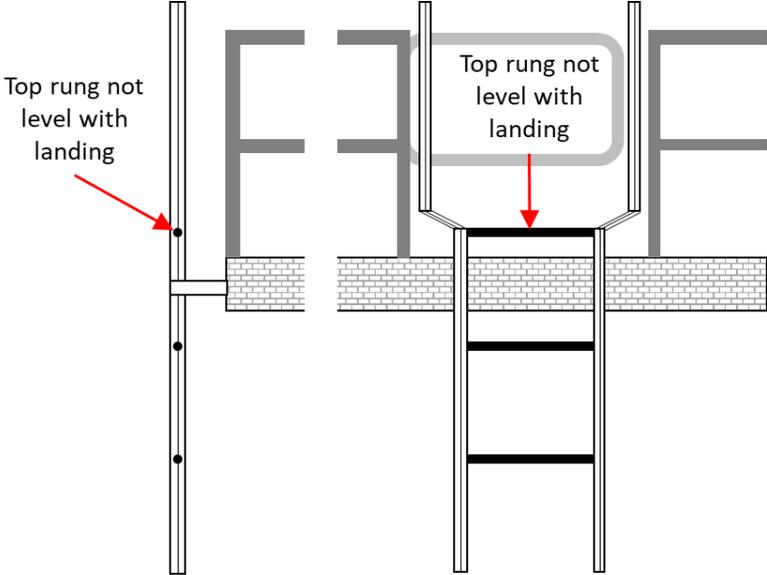
Category	Select all conditions present	X = Yes
<p>Clearance</p>	<p>4.1 There is less than 30 inches of clearance on the climbing side (front) of the ladder measured from the climbing side of the ladder to the nearest obstruction.</p>  <p>The diagram shows a vertical ladder with rungs. To the right of the ladder is a large, textured rectangular obstruction. To the left of the ladder is a smaller, textured rectangular obstruction labeled 'Obstacle'. A red double-headed arrow points from the ladder to the 'Obstacle'.</p>	
	<p>4.2 There is less than 7 inches of clearance behind the ladder measured from the back of the ladder to the nearest obstruction.</p>  <p>The diagram shows a vertical ladder with rungs. To the right of the ladder is a large, textured rectangular obstruction. A red double-headed arrow points from the back of the ladder to the obstruction.</p>	

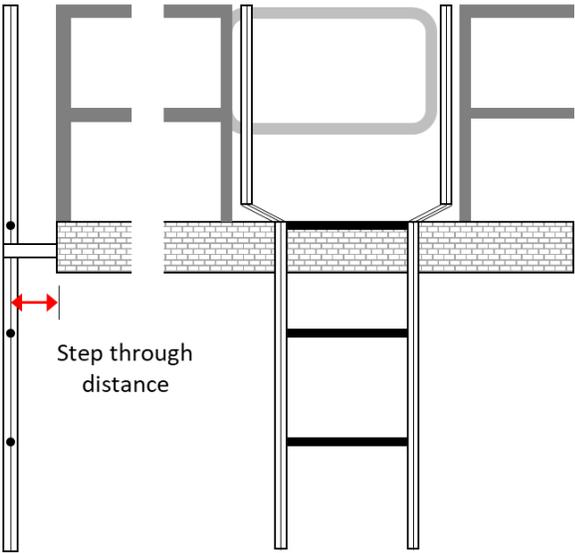
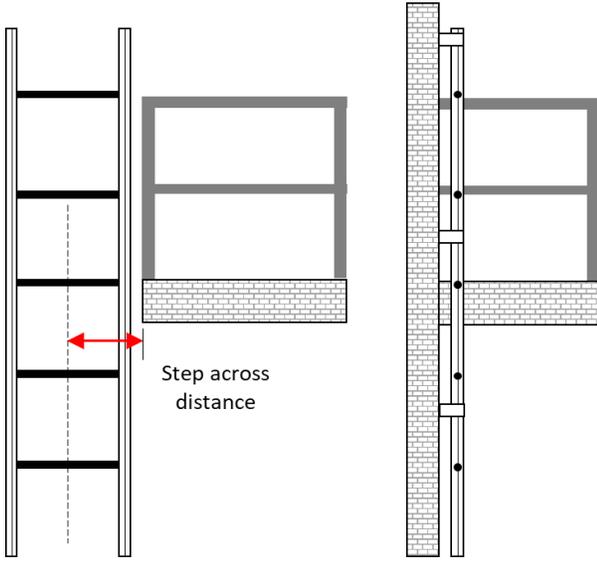
Category	Select all conditions present	X = Yes
	<p>4.3 There is less than 15 inches (measured from the center of the rung) of clearance on either side of the ladder without a cage.</p>  <p>Obstacle on either side</p>	
	<p>4.4 If grab bars are present, there is less than 7 inches of clearance behind grab bars.</p> 	

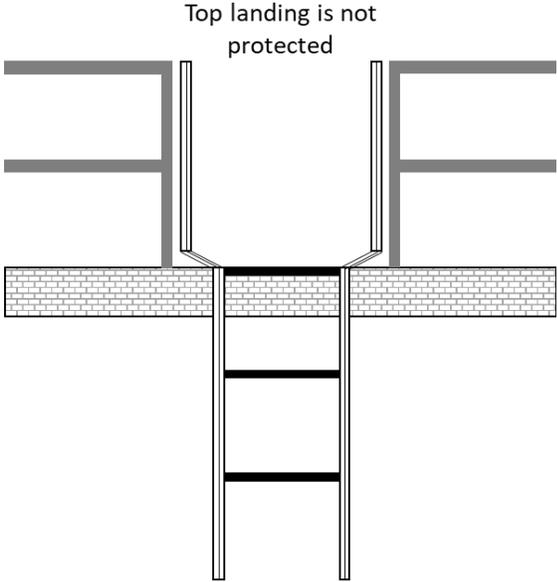
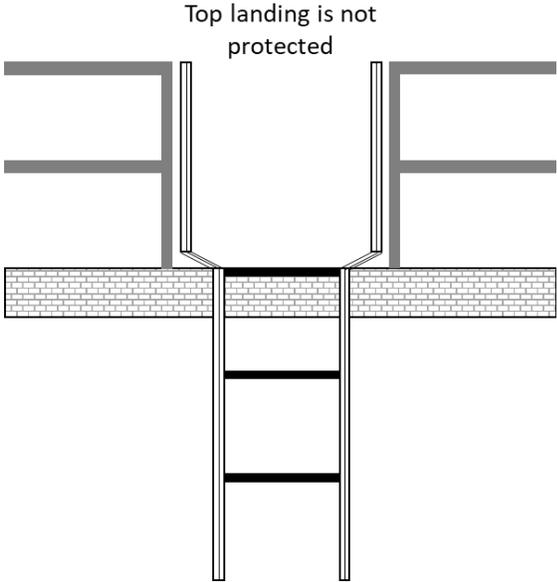
Category	Select all conditions present	X = Yes
	4.5 If an enclosed ladder, projections or obstructions (such as cables, hoses, pipes, tools, or equipment) are present on the climbing side (front) of the ladder.	
Rungs	5.1 Rungs are not parallel.	
	5.2 Rungs are not level.	
	5.3 Spacing between rungs is not uniform for the length of the ladder.	
	5.4 Distance between rungs is less than 10 inches or greater than 14 inches.	
	5.5 The lowest rung of the ladder is greater than 14 inches from the floor.	

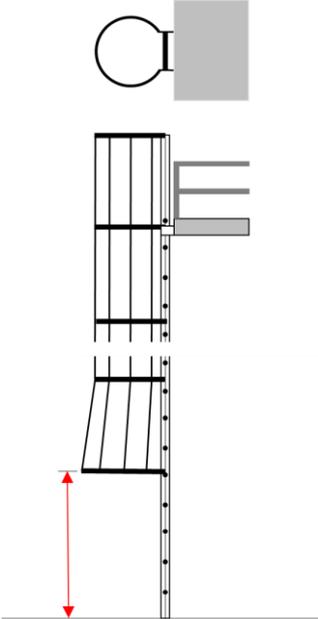
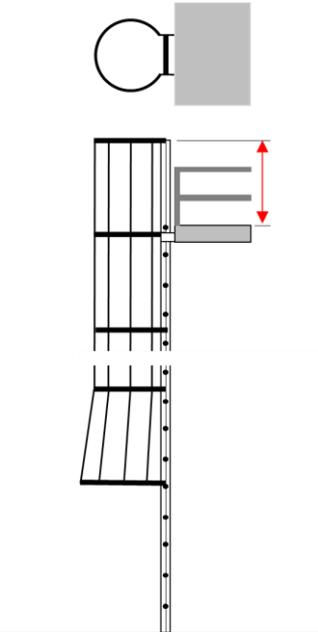
Category	Select all conditions present	X = Yes
	<p>5.6 Width of rungs (horizontal distance between rails) are less than 16 inches.</p> 	
	<p>5.7 Rungs are not corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping.</p>	
	<p>5.8 Rungs are not of uniform size and shape (cross section) for the length of the ladder.</p>	
	<p>5.9 For circular rungs, rung diameter is less than 1 inch.</p>	
<p>Rails & Handholds</p>	<p>6.1 Side rails do not have the same size and shape (cross section) for the length of ladder.</p>	
	<p>6.2 Handholds are not provided at the landing.</p>	

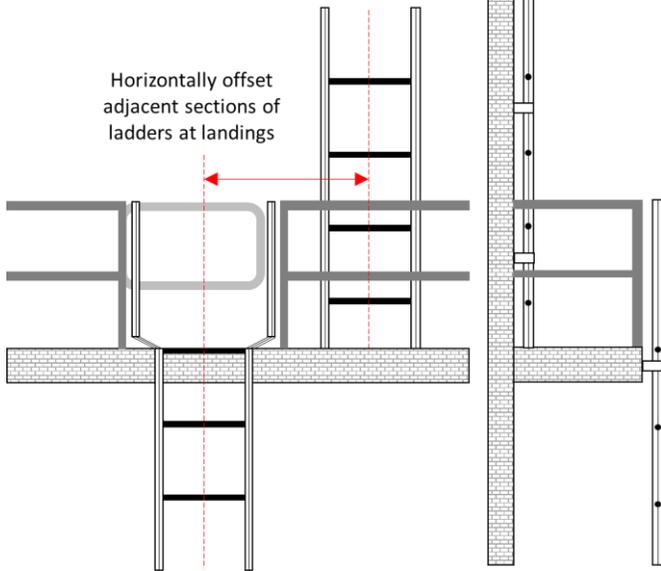
Category	Select all conditions present	X = Yes
	<p>6.3 Side rails extend less than 36 inches above the top of the landing.</p> 	
	<p>6.4 The width of the side rails (horizontal distance between side rails) at the landing is less than 24 inches or greater than 30 inches.</p> 	

Category	Select all conditions present	X = Yes
	<p>6.5 If grab bars are present, they protrude beyond the rungs of the ladder on the climbing side (front) of the ladder.</p> 	
	<p>6.6 If grab bars are present, they are not the same size as the rungs.</p>	
<p>Landings</p>	<p>7.1 The top rung is not level with the landing.</p> 	
	<p>7.2 The landing is less than 24 inches wide.</p>	

Category	Select all conditions present	X = Yes
	7.3 The landing is less than 30 inches long (in the direction of travel).	
	7.4 For step-through ladders, the step-through distance from the centerline of the ladder to the landing is less than 7 inches or greater than 12 inches.  <p>The diagram shows a cross-section of a step-through ladder. A red double-headed arrow indicates the 'Step through distance' from the centerline of the ladder to the landing surface. The landing is shown as a brick-patterned area.</p>	
	7.5 For side-step ladders, the step-across distance from the centerline of the ladder rung to the landing is less than 15 inches or greater than 20 inches.  <p>The diagram shows two views of a side-step ladder. The left view shows a side view with a red double-headed arrow indicating the 'Step across distance' from the centerline of a ladder rung to the landing surface. The right view shows a top-down view of the ladder and landing.</p>	

Category	Select all conditions present	X = Yes
	<p>7.6 The top landing of the ladder is not protected by a guardrail, chain, gate, or picket fence.</p> 	
	<p>7.7 The guardrail, chain, gate, or picket fences on the top landing is missing or damaged.</p> 	
<p>Long ladders (30 feet or more in length)</p>	<p>8.1 Back guards, cage, safety system, or equivalent protection is missing, damaged, or nonfunctional.</p>	

Category	Select all conditions present	X = Yes
	<p>8.2 The back guard, cage, or equivalent protection starts more than 7 feet above the floor.</p>  <p>The diagram shows a vertical ladder with a back guard. A red double-headed arrow indicates the height from the floor to the bottom of the back guard, which is significantly above the floor level.</p>	
	<p>8.3 The back guard, cage, or equivalent protection does not extend at least 42 inches above the landing.</p>  <p>The diagram shows a vertical ladder with a back guard. A red double-headed arrow indicates the height of the back guard above the landing, which is less than 42 inches.</p>	

Category	Select all conditions present	X = Yes
	<p>8.4 If the ladder has multiple sections, the sections are not horizontally offset from adjacent sections at each landing.</p>  <p>Horizontally offset adjacent sections of ladders at landings</p>	

Fixed Ladder Recommendations

General

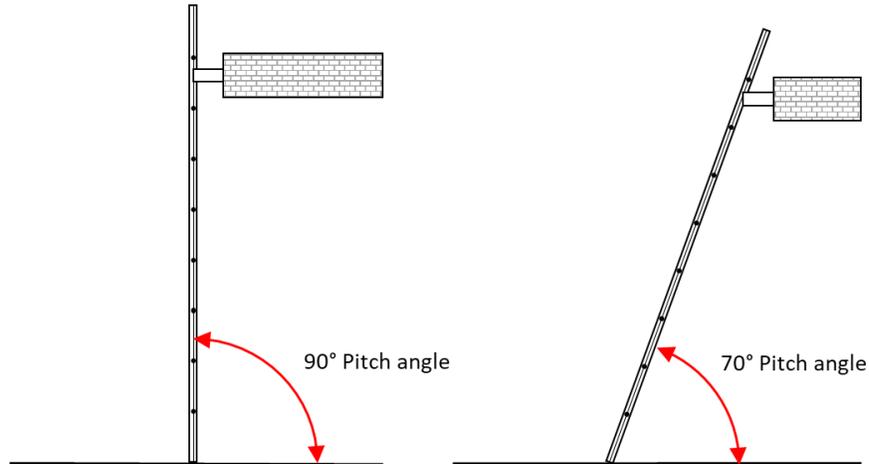
- **(L Q 1.1)** You indicated that workers use this ladder regularly. Install stairways, rather than ladders, in areas where regular travel between levels occurs. Ladders pose a greater slip, trip, and fall risk as compared to stairs.
- **(L Q 1.2)** You indicated that tools or equipment are normally carried when using this ladder. When tools or equipment are carried by hand, this prevents the use of 3 points of contact on the ladder. Install stairways, rather than ladders, in areas where regular travel between levels occurs or when tools and equipment are normally carried by hand between levels. Ladders pose a greater slip, trip, and fall risk as compared to stairs. If tools or equipment are normally carried when using the ladder and the ladder cannot be replaced with a stairway, provide a backpack to the workers so that the tools are not held in the hand, store necessary tools on each level, or provide a rope and pulley or lifting cable system next to the ladder.

Maintenance

- **(L Q 2.1)** You indicated that the ladder moves, shakes, or is not anchored securely. Securely anchor fixed ladders to prevent movement when in use. Any movement of the ladder, including vibration, when in use can lead to a fall. Ladders with excessive movement, should be taken out of service until they can be securely anchored. When possible, install ladders in such a way so that vibration from the equipment is not transmitted to the ladders. Routinely examine and maintain fixed ladders to ensure that they do not move, shake, or vibrate when in use.
- **(L Q 2.2 or Q 2.3)** You indicated that the ladder has a slipping hazard on its rungs or rails or that there is spillage or debris on the landing or around the top or bottom of the ladder. Routinely examine and clean fixed ladders to ensure that the area around the top and bottom of the ladder is free from obstacles or debris and that the ladder rungs and rails are free from oil, grease, ice, snow, or other slippery contaminants. Install a paved landing 24 inches wide by 30 inches long (in the direction of travel) to prevent erosion at the base of the ladder. Holes, ruts, and erosion at the base of the ladder can affect the vertical distance of the first rung and create an uneven surface when transitioning from the ladder to the ground, leading to injuries.
- **(L Q 2.4)** You indicated that the ladder rungs or rails have protrusions, burrs, or sharp edges. Clothing can get snagged on the protrusions, burrs, or sharp edges. There is also a risk of a puncture, cut, or laceration from rungs and rails that have protrusions, burrs, or sharp edges. Install ladders that do not have protrusions, burrs, or sharp edges. Routinely examine and maintain ladders.
- **(L Q 2.5)** You indicated that there is rust on metal ladders. Rust can compromise the structural integrity of the ladder. Paint or treat metal ladders to resist corrosion and rusting. Routinely examine and maintain ladders and address rust and corrosion. If corrosion affects the structural integrity of the ladder, remove the ladder from service and tag with a “Do Not Use” sign identifying the hazard. Only return the ladder to normal use when the corrosion has been adequately mitigated

Design

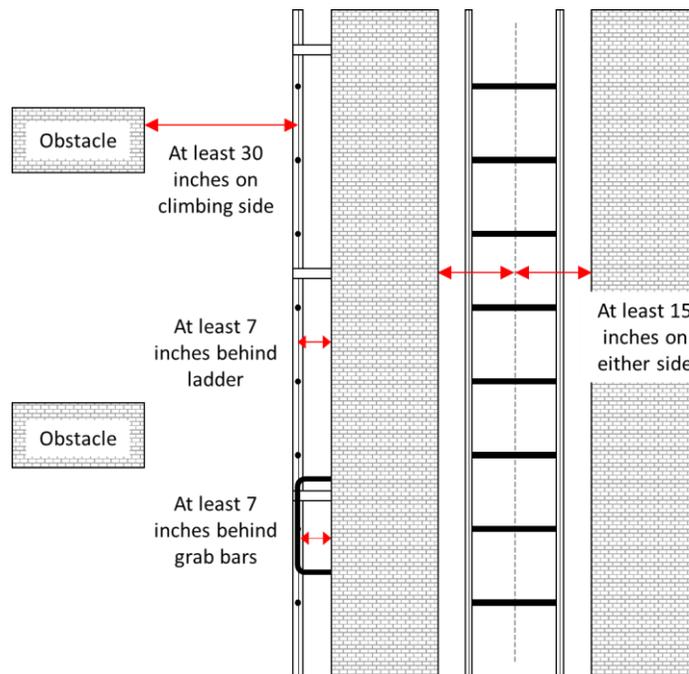
- **(L Q 3.1)** You indicated that the pitch/angle/inclination of the ladder is less than 70° or greater than 90°. Install ladders with pitch between 70° and 90°. Ladders outside this range pose a significantly higher fall risk. When the pitch of a ladder is between 30° and 50°, install stairs. You can use this app, an inclinometer, or the [NIOSH Ladder Safety App](#) to check the pitch of the ladder. The [NIOSH Ladder Safety App](#) also provides other useful information on portable ladders.



- **(L Q 3.2)** You indicated that a single rail ladder is used. Install a double rail ladder rather than a single rail ladder as it is safer to use.

Clearance

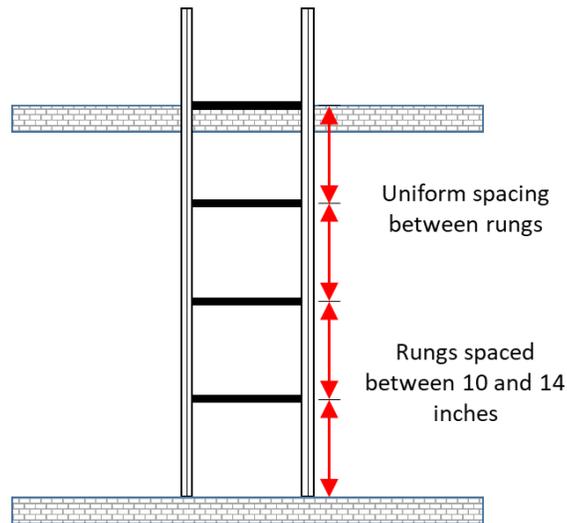
- **(L Q 4.1 or Q 4.2 or Q 4.3 or Q 4.4)** You indicated that there is less than 30 inches of clearance on the climbing side (front) of the ladder, less than 7 inches of clearance behind the ladder or behind grab bars, or less than 15 inches (measured from the center of the rung) of clearance on either side of the ladder. Install ladders without obstructions within 30 inches on the climbing side (or 24 inches when a deflector plate is used). No obstructions should be present within 7 inches behind the rungs (toe clearance) and grab bars and 15 inches from the centerline of the ladder on each side. For unavoidable obstructions behind ladders, ensure that the obstruction is at least 4-½ inches above the rung and at least 1-½ inches below the rung of the ladder. Promptly remove/reroute any moveable obstructions (such as cables, hoses, pipes, tools, or equipment) that result in clearances that are less than recommended. Routinely examine and maintain ladders and the surrounding area.



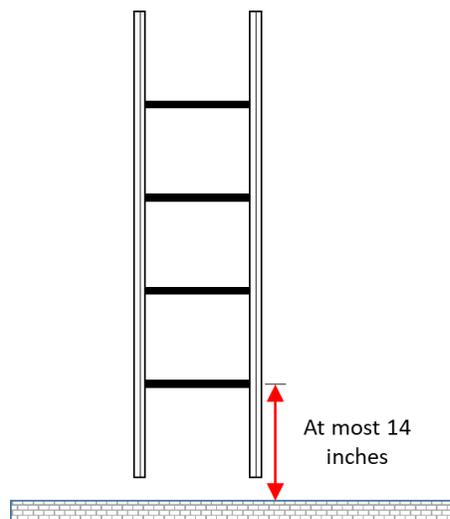
- **(L Q 4.5)** You indicated that projections or obstructions are present on the climbing side (front) of enclosed ladders. Install ladders without any obstructions on the climbing side. No obstructions should be present within 15 inches from the centerline of the ladder on each side. Promptly remove/reroute any obstructions (such as cables, hoses, pipes, tools, or equipment) that result in clearances that are less than recommended. Routinely examine and maintain ladders and the surrounding area.

Rungs

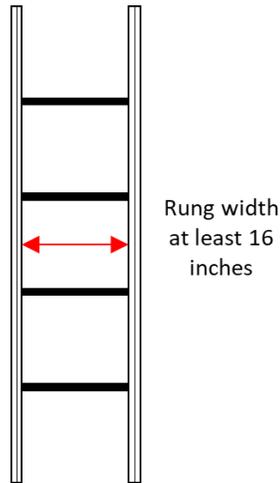
- **(L Q 5.1 or Q 5.2 or Q 5.3 or Q 5.4)** You indicated that the distance between rungs is less than 10 inches or greater than 14 inches or the rungs are not uniformly spaced, parallel, and level. Workers do not often look at their feet when ascending and descending ladders and assume a uniform spacing. Workers can have difficulty traversing ladders with bent, deformed, or unequally spaced rungs, and these issues can lead to slips, trips, and falls. Install ladders with rungs that are level, parallel, and uniformly spaced between 10 and 14 inches apart vertically. Routinely examine and maintain ladders to ensure rungs are level, parallel, and uniformly spaced. If ladder rungs are bent, broken, or missing, remove the ladder from service, provide a “Do Not Use” sign identifying the hazard, and only return the ladder to normal use when the hazard has been adequately mitigated.



- **(L Q 5.5)** You indicated that the lowest rung of the ladder is more than 14 inches from the floor. Install ladders with the first rung less than 14 inches from the walking surface to reduce the physical effort needed to gain access to the ladder. Routinely examine and maintain ladders.



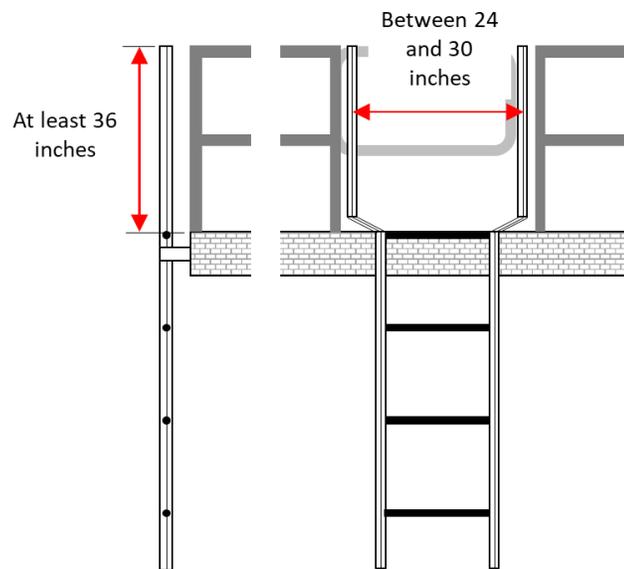
- **(L Q 5.6)** You indicated that the width of the rungs (horizontal distance between rails) is less than 16 inches. Install ladders with rungs that are at least 16 inches wide (horizontal distance between rails), level, and parallel. Remove/reroute any obstructions (such as cables, hoses, pipes, tools, or equipment) that result in less than 16 inches of rung width. Routinely examine and maintain ladders to ensure that the width of the rungs are at least 16 inches.



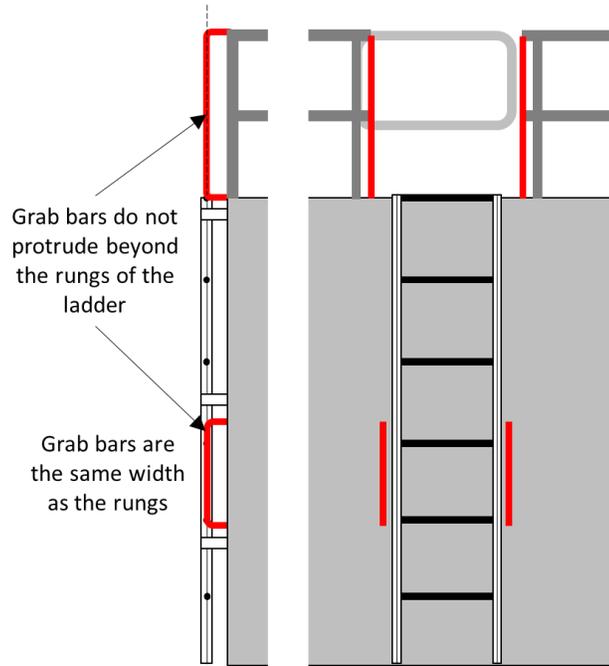
- **(L Q 5.7)** You indicated that the rungs are not treated to minimize slipping. Install metal rungs that are corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping. Routinely examine and maintain ladder rungs to ensure that rungs provide adequate slip resistance.
- **(L Q 5.8)** You indicated that the rungs do not have a uniform size and shape (cross section) for the length of the ladder. Uniformly sized and shaped rungs are easier to grasp when traversing ladders. Install ladders with rungs that are uniformly sized (cross section) and spaced. Replace rungs or the ladder to ensure consistent rung and rail cross-sections. Routinely examine and maintain ladders.
- **(L Q 5.9)** You indicated that the circular rung diameter is less than 1 inch. Install circular steel rungs of uniform size and shape that are at least 1 inch in diameter. Ensure all metal rungs are corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping. Routinely examine and maintain ladders rungs.

Rails and Handholds

- **(L Q 6.1)** You indicated that the side rails do not have the same size and shape (cross section) for the length of the ladder. Install side rails with the same shape for the entire length of the ladder as they are easier to grasp when traversing ladders. Routinely examine and maintain side rails to ensure that they are of uniform shape for the length of the ladder.
- **(L Q 6.2 or Q 6.3 or Q 6.4)** You indicated that handholds are not provided at the landing, side rails extend less than 36 inches above the top of the landing, or the width of the side rails at the landing is less than 24 inches or greater than 30 inches. Handrails above the landing provide support to workers as they transition from the ladder to the landing. Install side rails that extend at least 36 inches above the landing and are flared to between 24 and 30 inches wide; or install handholds above the landing. Routinely examine and maintain side rail extensions and handholds.

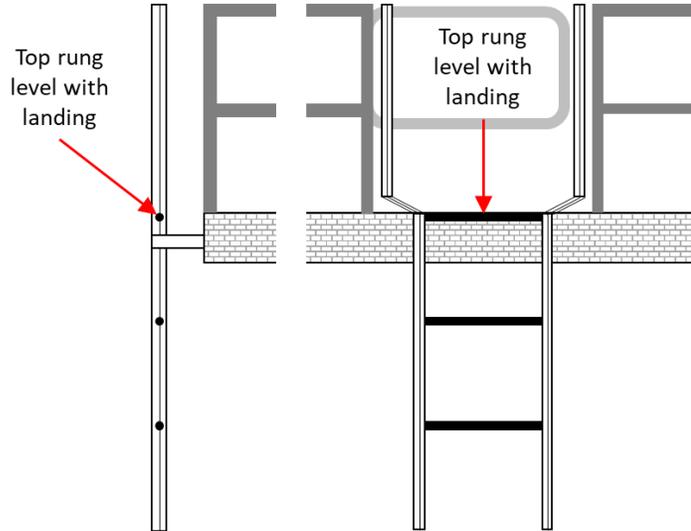


- **(L Q 6.5 or 6.6)** You indicated that when grab bars are present, they protrude beyond the rungs of the ladder on the climbing side (front) of the ladder or the grab bars are not the same size as the rungs. Grab bars that protrude beyond the rungs of the ladder on the climbing side increase the pitch of the ladder above 90°, which is not recommended. They also reduce the required clearances and can snag clothing. Remove and replace grab bars so that they do not protrude beyond the rungs of the ladder on the climbing side.

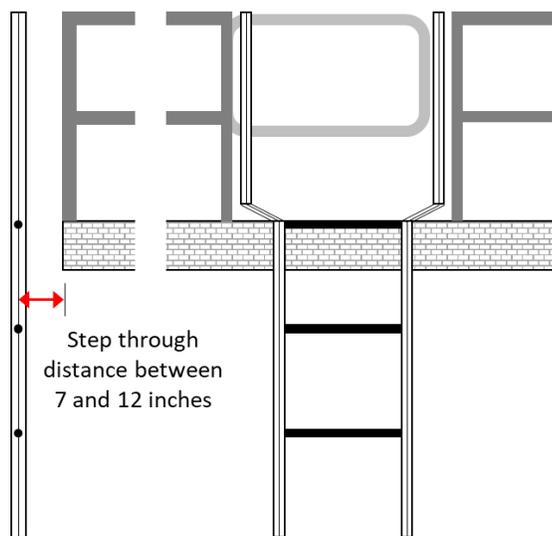


Landings

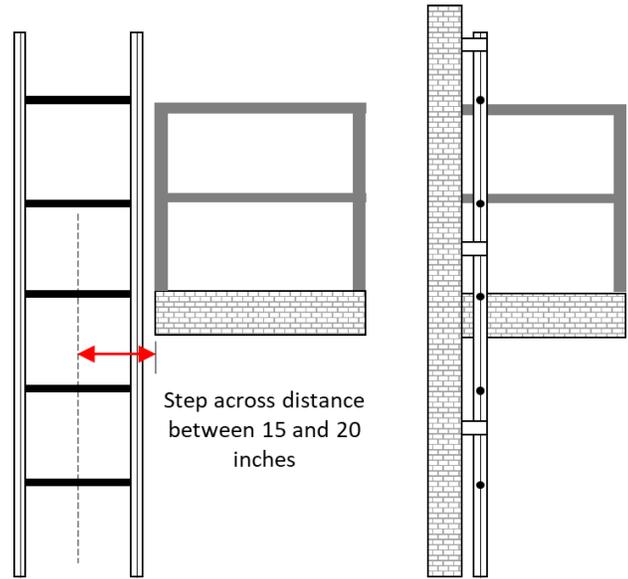
- **(L Q 7.1)** You indicated that the top rung is not level with the landing. A top rung that is not level with the landing can make transferring to the landing a challenge. Install ladders with the top rung flush with the landing. Routinely examine and maintain ladders and landings to ensure they remain flush.



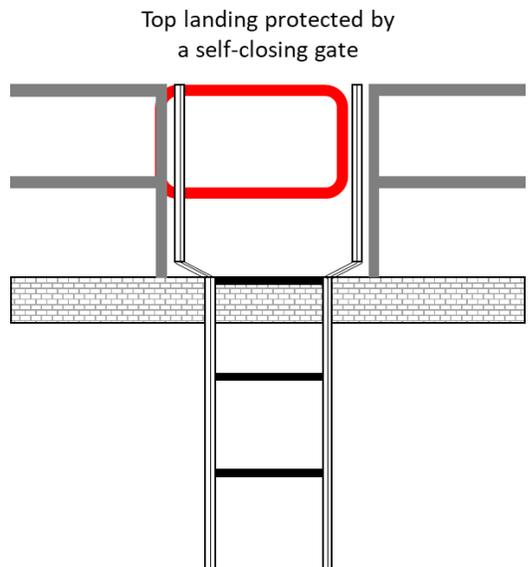
- **(L Q 7.2 or Q 7.3)** You indicated that the landing is less than 24 inches wide or less than 30 inches long (in the direction of travel). Provide landings that are at least 30 inches long in the direction of travel, at least 24 inches wide, and flush with the top rung. Remove/reroute any obstructions (such as cables, hoses, pipes, tools, or equipment). Routinely examine and maintain landings.
- **(L Q 7.4)** You indicated that the step-through distance of this step-through ladder from the centerline of the ladder to the landing is less than 7 inches or greater than 12 inches. Install step-through ladders such that the landings are between 7 and 12 inches from the centerline of the rung. Routinely examine, clean, and maintain ladders and landings to meet specified step-across distances.



- **(L Q 7.5)** You indicated that the step-across distance of this side-step ladder from the centerline of the ladder rung to landing is less than 15 and more than 20 inches. Install side-step ladders such that the landings are between 15 and 20 inches from the centerline of the rungs. Routinely examine, clean, and maintain ladders and landings to meet specified step-across distances.

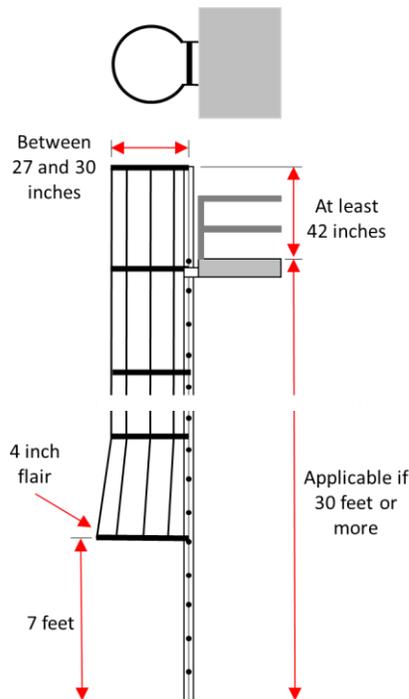


- **(L Q 7.6 or Q 7.7)** You indicated that the top landing of the ladder is not adequately protected by a guardrail, chain, gate, or picket fence. It is preferable to treat the top landing of a ladder as a wall opening at that level. Install a self-closing gate, guardrail, chain, or picket fence at the top landing of the ladder. Routinely examine and maintain the guardrail, chain, gate, or picket fence to ensure that they are closed when not in use and are free from damage.

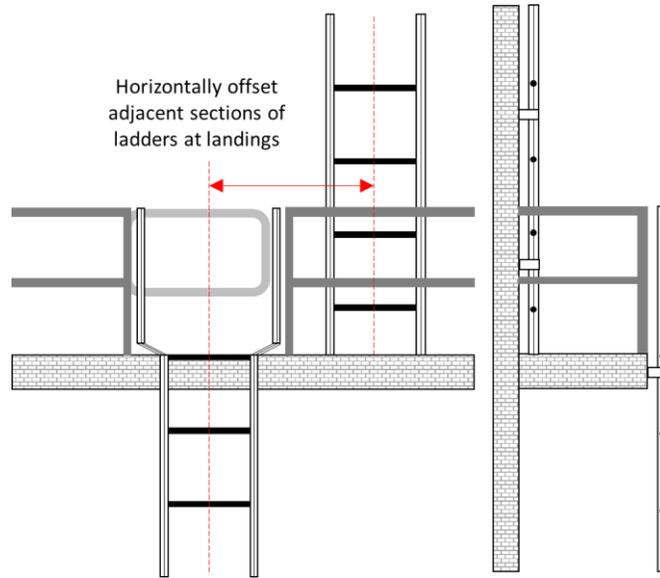


Long ladders (30 feet or more in length)

- **(L Q 8.1)** You indicated that the safety system for this ladder longer than 30 feet in length is missing, damaged, or nonfunctional. Install a safety system such as a back guard, cage, or equivalent on a ladder longer than 30 feet. Routinely examine and maintain ladder safety systems to ensure that they are not broken, damaged, or missing and are free of protrusions or obstructions.
- **(L Q 8.2 or Q 8.3)** You indicated that the safety system for this ladder longer than 30 feet in length starts more than 7 feet above the floor and extends less than 42 inches above the landing. Install a safety system such as a back guard, cage, or equivalent that starts at 7 feet from the ground, extends 42 inches above the landing, and has 27-30 inches of clearance on the climbing side. Routinely examine and maintain ladder safety systems to ensure that they are not broken, damaged, or missing and are free of protrusions or obstructions.



- **(L Q 8.4)** You indicated that the adjacent sections of this ladder are not horizontally offset at each landing. Horizontally offset adjacent sections of ladders at landings.





Promoting productive workplaces through safety and health research