

4123:1-3-11 Ladders.

(A) Reserved.

(B) Definitions.

- (1) "Cleat ladder" means a ladder consisting of one section having two side rails and steps formed of cleats attached to the side rails with fillers between the cleats.
- (2) "Extension ladder" means a portable ladder, adjustable in length. It consists of two or more sections traveling in guides or brackets so arranged as to permit length adjustment. Its size is designated by the sum of the lengths of the sections measured along the side rails.
- (3) "Extension trestle ladder" means a portable ladder consisting of an "A" or trestle ladder with an additional vertical single ladder, having parallel sides, which adjustable perpendicularly and is provided with a device to lock it into place. Its size is designated by the length of the trestle ladder base.
- (4) "Fixed ladder", as used in this rule, means a ladder is securely fastened in a fixed position, whether to remain as part of the structure or for use during a part or all of the construction period.
- (5) "Ladder" means a piece of equipment usually consisting of two side rails joined at regular intervals by cross-pieces called steps, treads, rungs, or cleats, on which employee may step in ascending or descending.
- (6) "Sectional ladder" means a portable ladder, nonadjustable in length, consisting of two or more sections so constructed that the sections may be combined to function as a single ladder. Its size is designated by the over-all length of the assembled sections.
- (7) "Single ladder" means a portable, nonadjustable ladder consisting of but one section.
- (8) "Step ladder" means a self-supporting portable ladder, nonadjustable in length, having flat steps or treads and a hinged back. Its size is designated by the over-all length of the ladder measured along the front edge of the side.
- (9) "Trestle, or 'A', ladder" means a self-supporting portable ladder, nonadjustable in length, consisting of two sections hinged at the top of form equal angles with the base. The size is designated by the

(C) General requirements for all ladders.

- (1) Construction.
All ladders shall be constructed of wood, metal, or other equivalent material and shall be capable of supporting all loads without failure with a factor of safety of no less than four.
 - (a) Side rails.

- (i) Side rails shall be parallel or shall vary uniformly in separation along the length (tapered) of the ladder or shall flare at the base. The design of the side rails shall be such that the ladder will conform to the specific safety requirements of this rule.
 - (ii) Wood side rails shall be of sound material free from shakes, cross grain, checks or decay. Knots shall not exceed one-half-inch diameter and shall not be nearer than one-half inch to the edge of the rail or within three inches of the rung, step, or tread.
- (b) Rungs, steps, cleats, or treads.
All rungs, steps, cleats, or treads shall have a uniform spacing which shall be no less than ten and no more than fourteen inches on center.
- (2) Defective ladders.
Defective ladders shall be repaired to meet original specifications or shall be withdrawn from service. Cleats shall not be used to repair rung ladders.

(D) Portable ladders.

- (1) General requirements for all portable ladders.
 - (a) Metal rungs, steps, or treads.
All metal rungs, steps or treads shall be corrugated, knurled, dimpled, or coated with skid-resistant material.
 - (b) Safety shoes, spikes, or spurs.
All portable ladders shall be equipped with safety shoes, metal spikes, or spurs. Safety shoes shall be surfaced with cork, carborundum, rubber, or other material with equivalent coefficient of friction. This does not apply to step ladders, lash ladders, or hook ladders.
 - (c) Hook ladders.
Ladders designed for use by hooking shall be equipped with two or more substantial metal hooks at the top of the ladder. (For chicken or roof ladders, see paragraph (H) of rule 4121:1-3-09 of the Administrative Code.)
 - (d) Ladders shall not be placed in passageways, doorways, driveways, or any locations where they may be displaced by activities being conducted on any other work, unless protected by barricades or guards.
 - (e) Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.
- (2) Extension ladders.
Extension ladders shall be equipped with two automatic locks of malleable iron, cast aluminum or equivalent material attached to the side rails of the upper extension and of such construction as to make the extension ladder equal in strength to a ladder constructed of continuous side rails.
- (3) Step ladders.

- (a) Height.
Step ladders shall not exceed twenty feet in height.
 - (b) Spreader.
A substantial spreader shall be provided on step ladders to hold the ladder in the open position.
- (4) Sectional ladders.
- (a) Sectional ladders shall not exceed thirty-seven feet in extended length.
 - (b) The distance between rungs shall be twelve inches on centers.
 - (c) Adjacent sections shall be joined by means of groove in the ends of each rail of each section so that the two sections of the ladder enjoined are set together firmly, the grooves of the rails of one section gripping the rung inside or adjacent extensions of the rung outside of the adjoining section. The fit between rail grooves and rungs shall provide a good fit without binding or unnecessary play.
 - (d) The grooved ends of the sections shall be reinforced with a steel plate no less than eighteen-gauge steel (manufacturing standard) properly secured thereto, and a rivet adjacent to the groove, extending through the depth of the rail, or the
- (5) Trestle and extension trestle ladders.
- (a) The width between the side rails at the base of the trestle ladder and base sections of the extension trestle ladder shall be no less than twenty-one inches for all ladders and sections up to and including six feet. Longer lengths shall be increased no less than one inch for each additional foot of length. The width between the side rails of the extension sections of the trestle ladder shall be no less than twelve inches.
 - (b) The tops of the side rails of the trestle ladder and of the base section of the extension trestle ladder shall be beveled, or of equivalent construction and shall be provided further with a metal hinge to prevent spreading.
 - (c) A metal spreader or locking device to hold the front and back sections in an open position, and to hold the extension section securely in the elevated position shall be a component of all extension trestle ladders and all trestle ladders over twelve feet in length.
 - (d) Where a single rung support holds an entire rung of the upper extension and the support is attached to both side rails of the lower section, two automatic locks shall not be required.
 - (e) Rungs shall be parallel and level. On the trestle ladder, or on the base sections of the extension trestle ladder, rungs shall be spaced no less than eight inches or

more than eighteen inches apart; on the extension section of the extension trestle ladder, rungs shall be spaced no less than six inches or more than twelve inches apart.

- (f) Trestle ladders or extension sections or base sections of extension trestle ladders shall be no more than twenty feet in length.
- (g) The minimum distance between side rails of the trestle or extension sections or base sections at the narrowest point shall be no less than twelve inches. The width spread shall be no less than one inch per foot of length of side rail.

(E) Fixed ladders.

- (1) Maintained in place.
Fixed ladders shall be provided and maintained in place until temporary or permanent stairways are ready for use.
- (2) Fixed ladders exceeding twenty feet in length.
Ladder landings (rest platforms) shall be installed on fixed ladders each twenty feet or major fraction thereof in length. This shall not apply to water towers, masts, smokestacks, or material hoists.
- (3) Fixed ladder landings.
All fixed ladder landings shall be equipped with standard guard railing, intermediate rail and toeboards. The platform of such landings shall be no less than twenty four inches in width.
- (4) Extension of side rail above landing.
At least one side rail of fixed ladders to landings shall extend a distance of no less than thirty-six inches above the landing. The rungs may be omitted above the landing. Where an employee must step a greater distance than twelve inches from the ladder to the roof, structure, etc., a landing shall be provided.
- (5) Vertical distance between landing and top rung.
The vertical distance between the platform of the landing and the top rungs of the fixed ladder shall not exceed the rung spacing of the

(F) Ladders constructed on the job.

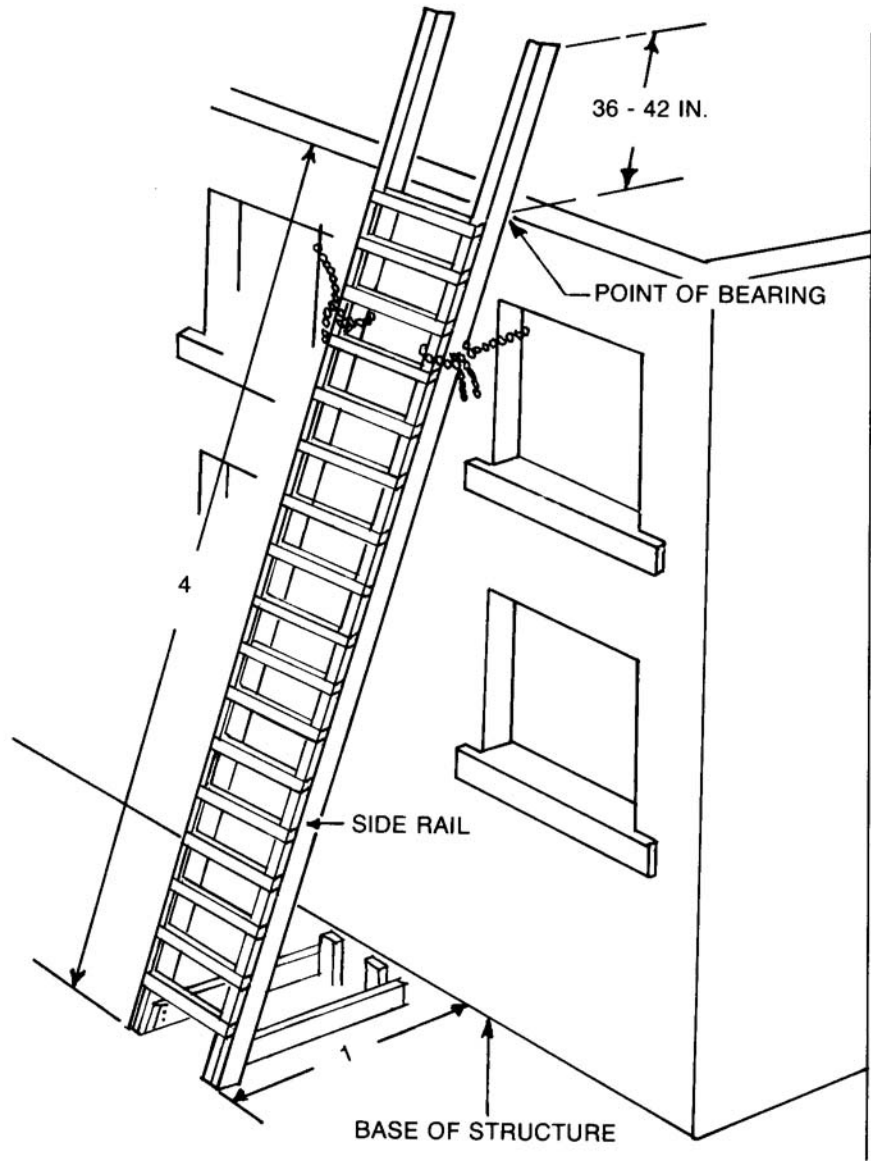
Ladders constructed on the job shall comply with the provisions of paragraphs(C)(1) of this rule and the following table. (See appendix to this rule for examples of ladders constructed on the job.)

Single section cleat construction ladders

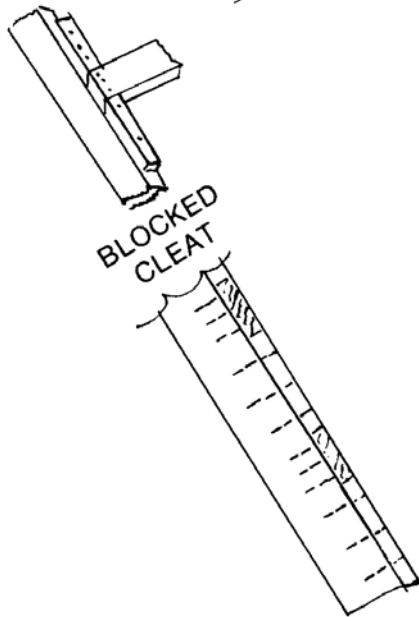
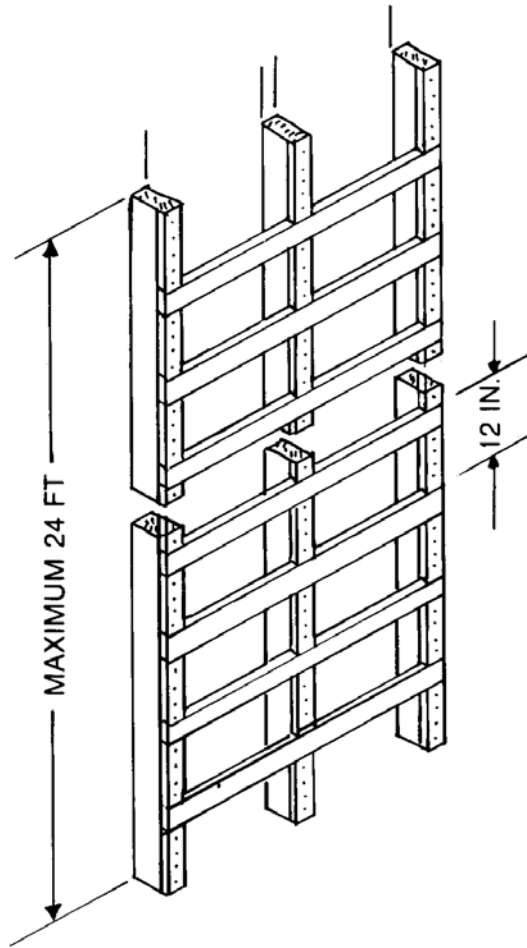
	Min. Inside Width	Max. Inside Width	Nominal Cross Section of Rails	Nominal Cross Section of Cleats
Up to 16'	20"	24"	2"×4"	1"×3"
More than 16'; up to 24'	20"	24"	2"×6"	1"×4"

EXAMPLES OF LADDERS CONSTRUCTED ON THE JOB

Example 11-1. Single cleat ladder.



**Example 11-2.
Double cleat ladder.**



**Example 11-3.
Blocked cleat.**

Effective: 4/1/99
Prior Effective Dates: 11/1/79; 4/1/68