

## 4123:1-5-03 Ladders and scaffolds.

(A) Reserved.

(B) Reserved.

(C) Ladders.

(1) Construction.

All ladders ~~shall~~ will be substantially constructed of wood, metal or other equivalent material. Ladders ~~must~~ have to be able to support at least four times the maximum intended load, except extra-heavy-duty type 1A metal or plastic ladders, which ~~must~~ have to be able to sustain 3.3 times the maximum intended load.

(a) Side rails.

(i) Wood.

All wood parts ~~shall~~ will be free from sharp edges and splinters; sound and free from shake, wane, compression failures, decay, or other irregularities. Low density wood ~~shall not~~ cannot be used.

(ii) Metal.

Metal side rails ~~shall~~ will be parallel or ~~shall~~ will vary uniformly in separation along the length (tapered) of the ladder or ~~shall~~ will flare at the base. The design of the side rails shall be such that the ladder will conform to the specific safety ~~requirements~~ specifications of this code.

(b) Rungs, steps or treads.

(i) Wood.

Wood rungs, steps or treads ~~shall~~ will be sound material free from knots, shakes, cross grain, large checks or decay. All rungs, steps or treads ~~shall~~ will have a uniform spacing not less than ten inches and not more than fourteen inches as measured between the centerlines of the rungs, cleats, and steps.

(ii) Metal.

Metal rungs, steps or treads ~~shall~~ will have a uniform spacing not less than ten inches and not

more than fourteen inches as measured between the centerlines of the rungs, cleats, and steps. Metal rungs, steps or treads to side rail connections ~~shall~~ will be so constructed as to conform to the factor of safety specified in paragraph (C)(1) of this rule.

(2) Portable ladders.

(a) Metal rungs, steps or treads.

All metal rungs, steps or treads ~~shall~~ will be corrugated, knurled, dimpled, or coated with skid-resistant material.

(b) Safety shoes, spikes or spurs.

(i) All portable ladders ~~shall~~ will be equipped with safety shoes, metal spikes or spurs. Safety shoes ~~shall~~ will be surfaced with cork, rubber or other material with equivalent coefficient of friction.

(ii) The ~~requirement specifications~~ in paragraph 2(b)(i) ~~does~~ of this rule do not apply to step ladders, lashed ladders or hook ladders.

(c) Hook ladders.

Ladders designed for use by hooking ~~shall~~ will be equipped with two or more substantial metal hooks at the top of the ladder.

(d) Portable metal or conductive ladders.

Portable metal or conductive ladders ~~shall not~~ cannot be used near energized conductors or equipment except as may be necessary in specialized work, such as in high voltage substations where non-conductive ladders might present a greater hazard than conductive ladders. Conductive or metal ladders ~~shall~~ will be prominently marked as "Conductive."

(3) Extension ladders.

(a) Automatic locks.

Extension ladders ~~shall~~ will be equipped with two automatic locks of malleable iron 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.

(b) 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~~ are not ~~be~~ required.

(4) Step ladders.

(a) Height.

Step ladders ~~shall not~~ cannot exceed twenty feet in length.

(b) Spreader.

A metal spreader ~~shall~~ will be provided on step ladders to securely hold the front and back sections in open position.

(5) Sectional ladders.

When sectional ladders are used they ~~shall~~ will conform to the following:

(a) Length.

Sectional ladders ~~shall not~~ cannot exceed sixty feet in extended length.

(b) Connection joint.

(i) Adjacent sections ~~shall~~ will be jointed by means of a groove in the bottom end of each rail of the upper of the two sections setting firmly over extensions outside the side rails, of the topmost rung of the next lower section and, at the same time, a groove in the top end of each rail of the lower of the two sections setting firmly over the bottom rung, inside the side rails, of the section next above.

(ii) The distance between the two rungs (topmost rung of one section, bottom rung of the section next above) mentioned in paragraph (C)(5)(b)(i) of this rule ~~shall not~~ cannot be less than one foot.

(iii) The fit between rail grooves and rungs mentioned in paragraph (C)(5)(b)(i) of this rule ~~shall~~ will be such as to provide a good fit without binding or unnecessary play.

(iv) The grooved ends of the sections ~~shall~~ will be reinforced with a metal plate of not less than eighteen-gauge (manufacturing standard) material properly secured thereto, and a rivet adjacent to the groove, extending through the depth of the rail, or the equivalent thereof.

(c) Structural dimensions and ~~requirements~~ design specifications.

(i) The minimum dressed cross section and distance between side rails of wood ~~shall~~ will be in accordance with Table 3-1 as follows:

--

Number of Sections	Thickness (inches)	Side Rails Cross Section Depth (inches)	Distance Base (inches)
Up to & including 4 sections	1-1/8	2-3/4	13
Over 4 sections, up to & including 6 sections	1-1/8	3-1/8	20

(ii) If the length exceeds six feet, the side rail cross sections ~~shall~~ will be correspondingly increased.

(6) Fixed ladders.

All fixed ladders more than twenty-four feet in length ~~shall~~ will be equipped with a personal fall arrest system, ladder safety system, cage, or well. ~~This requirement~~ These design specifications do ~~does~~ not apply to chimney ladders.

(a) Landing platforms.

(i) One section fixed ladders equipped with a fall arrest system or ladder safety system ~~must~~ will have rest platforms provided at maximum intervals of one hundred fifty feet.

(ii) Fixed ladders equipped with a cage or well ~~must~~ will have offset landing platforms at maximum intervals of fifty feet.

(iii) The step-across distance for through ladders ~~must-not~~ cannot be less than seven inches and not more than twelve inches to the nearest edge of the structure, building or equipment accessed from the ladder.

(iv) For side-step ladders, the step across distance ~~shall~~ will be not less than fifteen inches and not more than twenty inches to the access points of the platform edge.

(v) All landing platforms ~~shall~~ will be equipped with standard guard railings and toeboards, so arranged as to give safe access to the ladder. Platforms ~~shall~~ will be no less than twenty-four inches in width and thirty inches in length.

(vi) One rung of any section of ladder ~~shall~~ will be located at the level of the landing laterally served by the ladder. Where access to the landing is through the ladder, the same rung spacing as used on the ladder ~~shall~~ will be used from the landing platform to the first rung below the landing.

(b) Ladder extensions.

(i) The side rails of through or side-step ladder extensions ~~shall~~ will extend three and one-half feet above the top of the access level or landing platform served by the ladder.

(See figure 3-1)

(ii) For through ladder extensions, the rungs ~~shall~~ will be omitted from the extension and the side rails are flared to provide not less than twenty-four inches and not more than thirty inches of clearance. When a ladder safety system is provided, the maximum clearance between side rails of the extension ~~must not~~ cannot exceed thirty-six inches.

(iii) For side-step or offset fixed ladder sections at landings, the side rails and rungs ~~must~~ will be continuous in the extension (See figure 3-1)

VI

&"N.I

r-1Ji



i-1

N

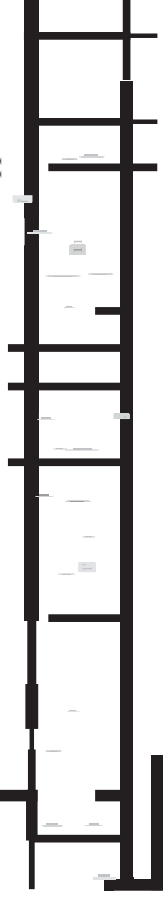
S

X

CP

IC

U1



20'-M'AX

4'-0

130' MA WITH BASKET GUARD

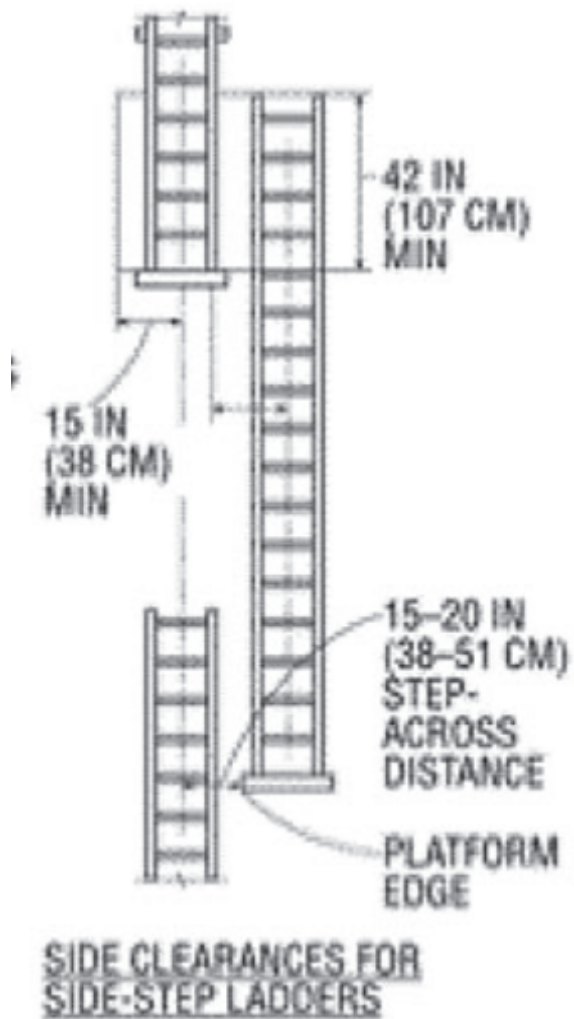


Figure 3-1

(c) Grab bars.

Grab bars ~~shall~~ will be spaced by a continuation of the rung spacing when they are located in the horizontal position. Vertical grab bars ~~shall~~ will have the same spacing as the ladder side rails. Grab bars' diameters ~~shall~~ will be the equivalent of the round-rung diameters.

(d) Ladder safety devices.

Ladder safety devices may be used on ladders in lieu of cage protection. No landing platform is **required needed** in these cases. All ladder safety devices such as those that incorporate life belts, friction brakes, and sliding attachments **shall will** meet the design **requirements specifications** of the ladder which they serve.

(e) Counterweighted hatch covers.

Where counterweighted hatch covers are provided they **shall will** open a minimum of seventy degrees from the horizontal. The distance from centerline of rungs or cleats to the edge of the hatch opening on the climbing side **shall will** be not less than twenty-four inches from offset wells or thirty inches for straight wells. There **shall will** be no protruding potential hazards within thirty inches of the centerline of rungs or cleats; when unavoidable obstructions are encountered, the minimum clearance at the obstruction may be reduced to twenty-four inches, provided deflector plates are installed at an angle of sixty degrees from the horizontal (See figure 3-2).

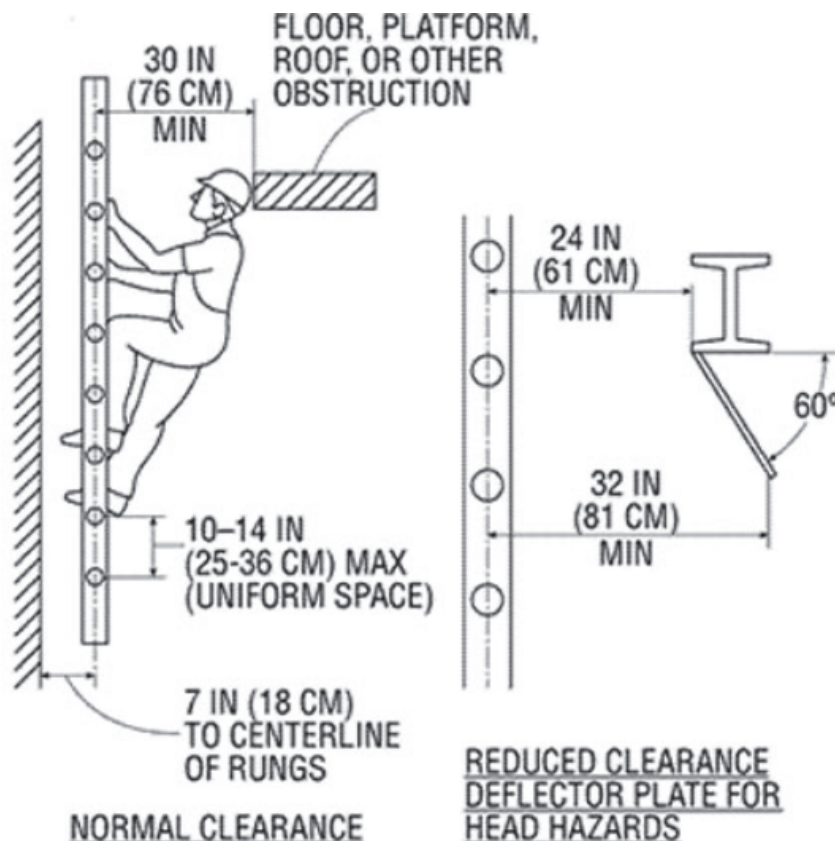


Figure 3-2

(f) Pitch of fixed ladders.

- (i) The pitch of fixed ladders **shall will** come in the range of seventy-five degrees and ninety degrees with the horizontal. (See figure 3-3).



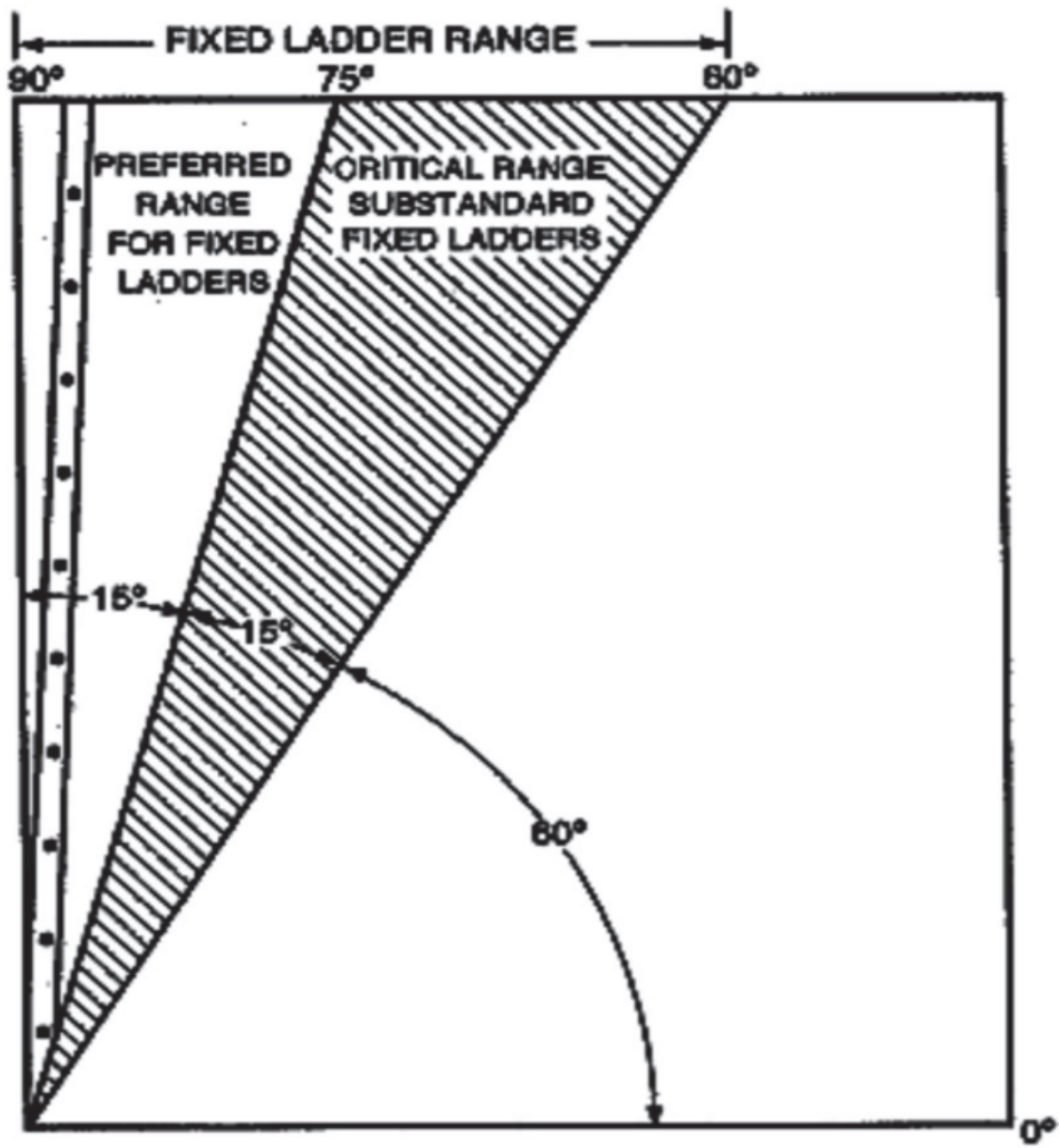


Figure 3-3

- (ii) Fixed ladders within the pitch range of sixty to seventy-five degrees with the horizontal are permitted only where it is found necessary to meet conditions of installation. Pitch ranges less than sixty degrees with horizontal are ~~prohibited~~ not permitted.
- (iii) Ladders having a pitch in excess of ninety degrees with the horizontal are ~~prohibited~~ not permitted.

(g) Manhole steps and ladders.

- (i) Entrance into a manhole ~~shall~~ will be by steps that are cast or mortared into the walls of riser or conical top sections or by portable ladder. Portable ladders ~~shall~~ will conform to the ~~requirements~~ specifications of paragraphs (C)(1) and (C)(2) of this rule.
- (ii) Manhole steps that are cast or mortared into the walls of riser or conical top sections ~~shall~~ will meet the following ~~requirements~~ specifications:
  - (a) Steps, appurtenances and fastenings ~~shall~~ will be capable of supporting the maximum intended load.
  - (b) The distance between rungs, cleats, and steps ~~shall not~~ cannot exceed sixteen inches and ~~shall~~ will be uniform throughout the length of the ladder. Rungs on an individual rung ladder ~~shall~~ will be so designed that the foot cannot slide off the end.
  - (c) When dissimilar types of materials are used in the steps, appurtenances and fastenings, the materials ~~shall~~ will be treated to prevent deleterious effects.
  - (d) The portion of the step projecting into the riser or cone opening ~~shall~~ will be free of any hazardous sharp edges, burrs, or projections.
  - (e) Ferrous metal steps not painted or treated to resist corrosion ~~shall~~ will have a minimum cross-sectional dimension of one inch.
  - (f) The minimum clear step width ~~shall~~ will be ten inches.
  - (g) The step ~~shall~~ will have a minimum perpendicular distance between the centerline of the manhole step to the nearest permanent object in back of the step of at least four and one-half inches.

(h) Rungs and cleats.

- (i) All rungs ~~shall~~ will have a minimum diameter of three-fourths inch for metal ladders or material of equivalent strength, and minimum diameter of one and one-eighth inches for wood ladders.
- (ii) The distance between rungs, cleats, and steps ~~shall will not~~ be spaced not less than ten inches and not more than fourteen inches and shall be uniform throughout the length of the ladder.
- (iii) The minimum clear length of rungs or cleats ~~shall will~~ be sixteen inches.
- (iv) Rungs, cleats, and steps ~~shall will~~ be free of splinters, sharp edges, burrs, or projections which may be a hazard.
- (v) The rungs of an individual-rung ladder ~~shall will~~ be designed so that the foot cannot slide off the end. A suggested design is shown in figure 3-4 of this rule.

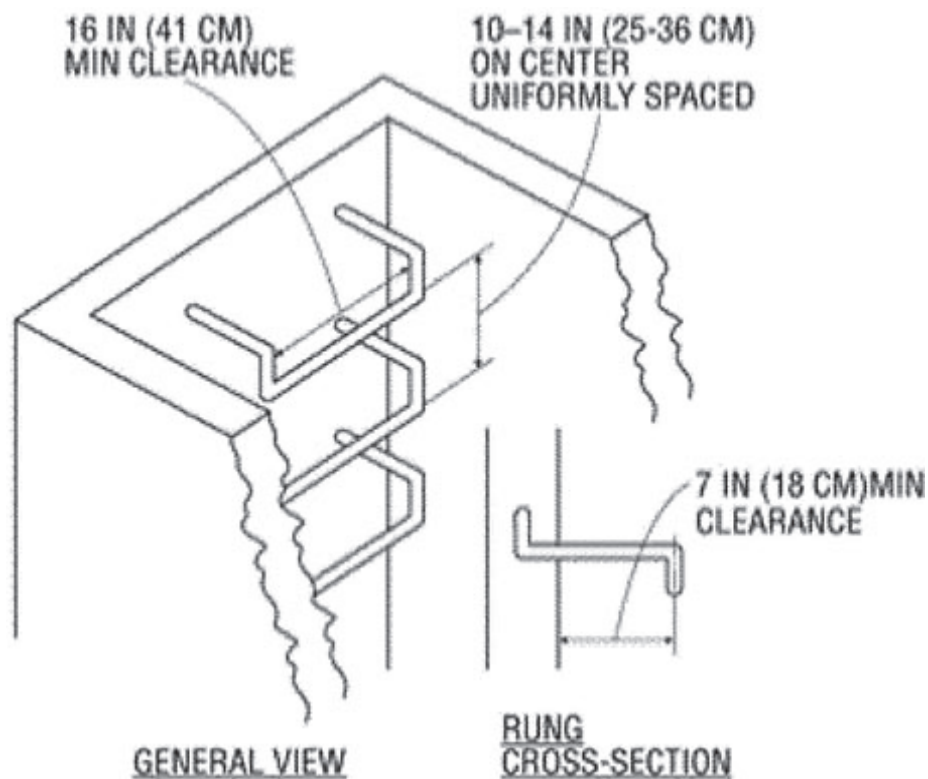


Figure 3-4

- (i) Fastenings.

Fastenings ~~shall will~~ be an integral part of fixed ladder design.

(j) Ladder cage.

A ladder cage which encircles the climbing space and is securely fastened to the side rails of the fixed ladder or to the structure ~~shall~~ will be provided.

(i) Size of cage.

The cage ~~shall~~ will not extend less than twenty-seven or more than twenty-eight inches from the centerline of the rungs of the ladder and ~~shall~~ will not be less than twenty-seven inches in width. Vertical bars ~~shall~~ will be at a minimum spacing of forty degrees around the circumference of the cage. This will give a maximum spacing of approximately nine and one-half inches, center to center. The inside of the cage ~~shall~~ will be clear of projections.

(ii) Top of cage.

The top of the cage ~~shall~~ will extend a minimum of forty-two inches above the top of the landing.

(iii) Bottom of cage.

The bottom of the cage ~~shall~~ will extend down the ladder to a point not less than seven nor more than eight feet above the base of the ladder, with bottom flared not less than four inches, or the portion of the cage opposite the ladder ~~shall~~ will be carried to the base. (See figure 3-5.)

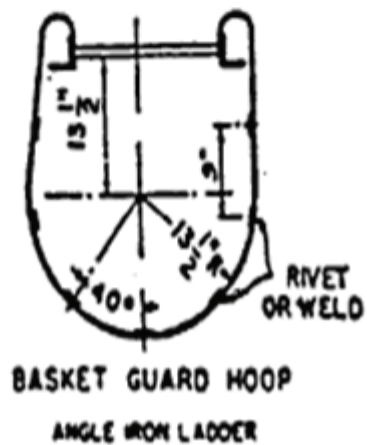
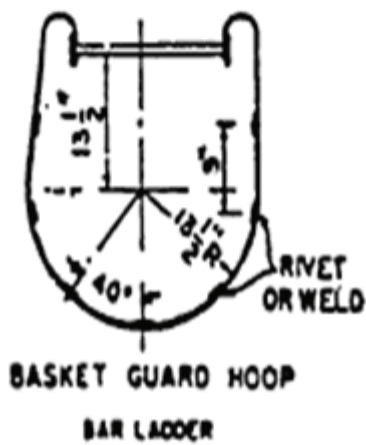
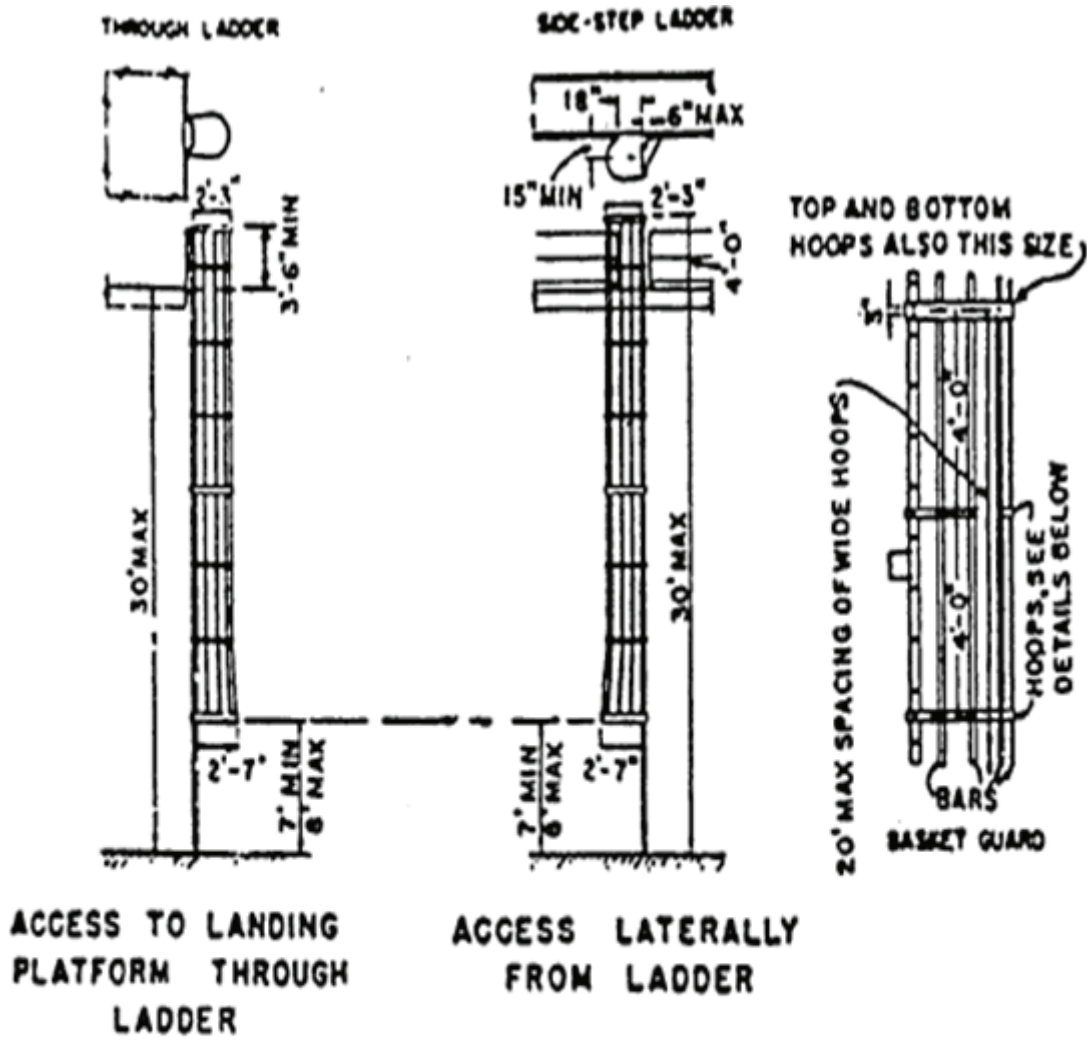


Figure 3-5

(k) Ladder well.

(i) If a ladder well is provided, it ~~shall~~ will permanently and completely enclose the climbing space and the ladder ~~shall~~ will be securely fastened to the walls of the well.

(ii) Minimum clearance.

Ladder wells ~~shall~~ will have a minimum clear width of fifteen inches measured each way from the center-line of the ladder. Smooth-walled wells ~~shall~~ will be a minimum of twenty-seven inches and not more than thirty inches from the centerline of the rungs, steps or treads to the well wall on the climbing side of the ladder. Where obstructions on the climbing side of the ladder exist, there ~~shall~~ will be a minimum clearance of thirty inches from the centerline of the rungs, steps or treads.

(7) Trolley and side-rolling ladders.

(a) Length.

Trolley ladders and side-rolling ladders longer than twenty feet ~~shall~~ will not be provided.

(b) Width.

The width between the side rails, inside to inside, ~~shall~~ will be not less than twelve inches.

(c) Step attachment.

Flat steps ~~shall~~ will be inset in the side rails one-eighth inch and secured with not less than two 6-d nails at each end, or the equivalent thereof. They ~~shall~~ will be reinforced with angle braces or a three-sixteenths-inch steel rod.

(d) Locking device.

Locking devices ~~shall~~ will be provided on all trolley ladders.

(e) Tracks.

(i) Tracks ~~shall~~ will be wood or metal (excluding cast iron) or a combination of these materials.

(ii) Tracks for the top end of ladders ~~shall~~ will be fastened securely and ~~shall~~ be so constructed that the wheels will not jump the track.

(iii) Tracks for side-rolling ladders ~~shall~~ will be supported by metal or wood brackets securely screwed or bolted to shelving or other permanent structure at intervals of not more than three feet.

(f) Wheel carriages.

(i) The wheel carriage ~~shall~~ will be so designed that a loose or broken wheel will not allow the ladder to drop or become detached from the track.

(ii) The wheel carriage for the bottom of the ladder ~~shall~~ will be securely fastened to the bottom of the ladder.

(iii) The wheels at the upper end of the ladder ~~shall~~ will have a minimum wheelbase of eight inches.

(8) 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~~ will be not less than twenty-one inches for all ladders and sections up to and including six feet. Longer lengths ~~shall~~ will be increased at least one inch for each additional foot of length. The width between the side rails of the extension sections of the trestle ladder ~~shall~~ will be not 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~~ will be beveled, or of equivalent construction and ~~shall~~ will 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~~ will be a component of all extension trestle ladders and all trestle ladders over twelve feet in length.

(d) Rungs ~~shall~~ will be parallel and level. On the trestle ladder, or on the base sections of the extension trestle ladder, rungs ~~shall~~ will be spaced not less than eight inches or more than eighteen inches apart; on the extension section of the extension trestle ladder, rungs ~~shall~~ will be spaced not less than six inches or more than twelve inches apart.

(e) General specifications - trestle and extension trestle ladders.

(i) Trestle ladders or extension sections or base sections of extension trestle ladders ~~shall~~ will be not more than twenty feet in length.

(ii) The minimum distance between side rails of the trestle or extension sections or base sections at the narrowest point ~~shall~~ will be not less than

twelve inches. The width spread ~~shall~~ will be not less than one inch per foot of length of side rail.

(9) Platform stepladder.

- (a) The minimum width between side rails at the platform ~~shall~~ will not be less than fifteen inches.
- (b) The back legs and side rails ~~shall~~ will extend at least twenty-four inches above the platform and ~~shall~~ will be connected with a top member to form a three-sided rail, or equivalent construction ~~shall~~ will be provided.
- (c) The wood parts of a combined wood and metal platform functioning as a spreader ~~shall~~ will not be depended upon to contribute to the spreading or locking action.

(D) Scaffolds.

(1) Stationary scaffolds.

(a) Construction.

- (i) Stationary scaffolds ~~shall~~ will be substantially constructed of wood, metal or other equivalent material and ~~shall~~ will be securely fastened.
- (ii) Scaffold platform construction.

Each platform on all working levels of scaffolds ~~shall~~ will be fully planked or decked between the front uprights and the guardrail supports. Planks or decking used in scaffolds ~~shall~~ will be scaffold grade, or equivalent and ~~shall~~ will be free of visible defects. -

(b) Factor of safety.

Stationary scaffolds and their load-bearing members ~~shall~~ will have a designed factor of safety of not less than four.

(c) Guarding.

- (i) Standard guard railing and toeboards ~~shall~~ will be provided on the unprotected sides of all stationary scaffolds which are ten feet or more



above the ground or supporting area, or that are over or immediately adjacent to water, machinery or sources of danger.

(ii) Standard guard railing and toeboards ~~shall~~ are not ~~be~~-required on ladder scaffolds.

(iii) When it is not practicable to install and use standard guard railing for employee protection on a scaffold, as ~~required~~ specified by this paragraph, safety harness which are properly secured to a lanyard and lifeline or a safety net properly installed, may be used instead of standard guard railings.

(d) Side screens.

Scaffolds ~~shall~~ will be provided with a screen between the toeboard and the guardrail, extending along the entire opening, consisting of no. eighteen gauge U.S. standard wire one-half inch mesh or the equivalent, where persons ~~are required to~~ work or pass under the scaffolds. At a minimum, side screens ~~shall~~ will be as high as the maximum height of material to be stored or piled on the scaffold. Side screens on scaffolds ~~shall~~ will consist of no. eighteen gauge U.S. standard wire one-half inch mesh or the equivalent.

(e) Ladder or ramp access.

An access ladder or equivalent safe access ~~shall~~ will be provided.

(f) Footings.

The footing or anchorage for scaffolds ~~shall~~ will be sound, rigid, and capable of carrying the maximum intended load without settling or displacement.

(g) Overlap.

All planking on platforms ~~shall~~ will be overlapped (minimum twelve inches) or ~~shall~~ be securely fashioned in place.

(h) End supports.

Scaffold planks ~~shall~~ will extend over their end supports not less than six inches nor more than twelve inches on a platform ten feet or less in length and not more than eighteen inches on a platform greater than ten feet in length. The scaffold planks ~~shall~~ will be laid tightly with no opening greater than one inch, through which tools or materials can fall.

(i) Overhead protection.

Overhead protection ~~shall~~ will be provided for employees on a scaffold exposed to overhead hazards.

(j) Rope.

(i) Rope (wire, fiber, or equivalent) used for scaffold suspension ~~shall~~ will have a factor of safety of not less than six.

(ii) Only treated or protected fiber rope or its equivalent ~~shall~~ will be used on or near any work involving the use of corrosive substances or chemicals.

(k) Shore or lean-to scaffolds.

The use of shore scaffolds or lean-to scaffolds is ~~prohibited~~ not permitted.

(l) Lumber sizes.

Lumber sizes, when used in this paragraph, refer to nominal sizes except where otherwise stated.

(m) Securing.

Scaffolds ~~shall~~ will be secured to permanent structures, through use of anchor bolts, reveal bolts, or other equivalent means. Window cleaners' anchor - bolts ~~shall~~ will not be used.

(2) Manually propelled mobile work platforms (ladder stands) and rolling scaffolds (towers).

Manually propelled mobile work platforms (ladder stands) and rolling platforms (towers) ~~shall~~ will support at least four times the designed working load. The assembled components of all mobile work platforms (ladder stands) and rolling platforms (towers) ~~shall~~ will provide a factor of safety of not less than four. Exposed surfaces ~~shall~~ will be free from sharp edges, burrs, or other projecting parts.

(a) Work platform levels.

(i) The maximum work platform height ~~shall~~ will not exceed four times the minimum or least base dimension of any mobile work platform (ladder stand) or rolling scaffold (tower). Where the basic mobile unit does not meet this ~~requirement~~ specification, outrigger frames shall be provided to meet this least base dimension, or ~~it shall~~ be securely fastened to prevent tipping.

(ii) The minimum work platform width for any work level ~~shall~~ will not be less than eighteen inches for mobile scaffolds (towers). Ladder stands ~~shall~~ will have a minimum step width of sixteen inches.

- (iii) The supporting structure for the work platform ~~shall~~ will be rigidly braced, using substantial cross bracing or diagonal bracing with rigid platforms at each work level.
- (iv) The steps of ladder stands ~~shall~~ will have slip resistant treads.
- (v) The work platform of rolling scaffolds (towers) ~~shall~~ will be the full width of the scaffold, except for necessary openings. Work platforms shall be securely fastened in place. All planking shall be two-inch scaffold grade lumber or equivalent.
- (vi) Work platforms ten feet or more above the ground or floor ~~shall~~ will have a standard guardrail with an intermediate rail and toeboard.
- (vii) A climbing ladder or stairway ~~shall~~ will be provided for access and egress, and ~~shall~~ will be secured safely to or built into the scaffold and so located that its use will not tip the scaffold. A landing platform ~~shall~~ will be provided at intervals not to exceed thirty feet.

(b) Wheels or casters.

- (i) Wheels or casters ~~shall~~ will support four times the designed working load.
- (ii) Scaffold casters ~~shall~~ will be provided with a positive wheel lock and/or swivel lock to prevent movement. Ladder stands ~~shall~~ will have at least two of the four casters of the swivel type.
- (iii) Where leveling of the elevated work platform is ~~required~~ necessary, screw jacks or equivalent means for adjusting the height ~~shall~~ will be provided in the base section of each mobile unit.

(c) Mobile tubular welded frame scaffolds.

(i) Bracing.

Scaffolds ~~shall~~ will be braced by cross braces and/or diagonal braces for securely fastening vertical members together laterally. The cross braces ~~shall~~ will be of a length that will automatically square and align vertical members so the erected scaffold is always plumb, square, and rigid.

(ii) Spacing.

Spacing of panels or frames ~~shall~~ will provide a factor of safety of not less than four. The frames ~~shall~~ will be placed one on top of the other with

coupling or stacking pins which ~~shall~~ will provide positive vertical alignment of the legs.

(iii) Locking.

Where uplift may occur, panels ~~shall~~ will be locked together vertically by pins or be securely fastened in place by other means which ~~shall~~ will provide equivalent rigidity.

(d) Mobile tubular welded sectional folding scaffolds.

(i) Stairway.

A stairway and work platform ~~shall~~ will be an integral part of the structure of each sectional folding stairway scaffold.

(ii) Bracing.

A set of pivoting and hinged folding diagonal and horizontal braces and a detachable work platform ~~shall~~ will be an integral part of the structure of each sectional folding ladder scaffold.

(iii) Sectional folding stairway scaffolds.

The width of a sectional folding stairway scaffold ~~shall~~ will not exceed four and one-half feet. The maximum length of a sectional folding stairway scaffold ~~shall~~ will not exceed six feet.

(iv) Sectional folding ladder scaffolds.

The width of a sectional folding ladder scaffold ~~shall~~ will not exceed four and one-half feet. The maximum length of a sectional folding ladder scaffold ~~shall~~ will not exceed six feet six inches for a six-foot-long unit, eight feet six inches for an eight-foot-long unit or ten feet six inches for a ten-foot-long unit.

(v) End frames.

The end frames of sectional ladder and stairway scaffolds ~~shall~~ will be designed so that the horizontal bearers provide supports for multiple planking levels.

(e) Mobile tube and coupler scaffolds.

Couplers ~~shall~~ will be of a structural type, such as a drop-forged steel, malleable iron or structural grade aluminum. The use of grey cast iron is prohibited.

(f) Mobile work platforms.

(i) Base width.

The minimum width of the base of mobile work platforms ~~shall~~ will not be less than eighteen inches.

(ii) Bracing.

Rigid diagonal bracing to vertical members ~~shall~~ will be provided.

(g) Mobile ladder stands.

(i) Base width.

The maximum length of the base section ~~shall~~ will be the total length of combined steps and top assembly, measured horizontally, plus five-eighths inch per step of rise.

(ii) Steps.

Steps ~~shall~~ will be uniformly spaced, and sloped, with a rise of not less than nine inches, nor more than ten inches and a depth of not less than seven inches. The slope of the steps section ~~shall~~ will be a minimum of fifty-five degrees and a maximum of sixty degrees measured from the horizontal.

(iii) Handrails.

(a) Units having more than five steps or sixty inches vertical height to the top step ~~shall~~ will be equipped with handrails.

(b) Handrails ~~shall~~ will be a minimum of twenty-nine inches high. Measurements shall be taken vertically from the center of the step.

(h) Erection.

Only the manufacturer of the scaffold or its qualified designee ~~shall-be~~ is permitted to erect or supervise the erection of scaffolds exceeding fifty feet in height above the base, unless such a structure is approved in writing by a licensed professional engineer, or erected in accordance with instructions furnished by the manufacturer.

(E) Boatswains' chairs.

- (1) When constructed of wood, the chair seat ~~shall~~ will be no less than twelve inches by twenty-four inches by one-inch thickness, reinforced by cleats on the underside to prevent splitting. A chair of the same size may be constructed of material of equal strength.
- (2) Seat slings ~~shall~~ will be of no less than five-eighths-inch diameter, first grade manila rope, or its equivalent, which ~~shall~~ will be reeved through the four seat holes so as to cross each other on the underside of the seat.
- (3) Seat slings ~~shall~~ will be of no less than three-eighths-inch wire rope when an employee is conducting a heat-producing process, such as gas or arc welding.
- (4) The employee ~~shall~~ will be protected by a safety harness and lifeline in accordance with paragraph (I)(6) of rule 4123:1-5-17 of the Administrative Code. The attachment point of the lifeline to the structure ~~shall~~ will be appropriately changed as the work progresses.
- (5) The tackle ~~shall~~ will consist of correct size ball bearing or bushed blocks and properly spliced five-eighths-inch diameter, first grade manila rope, or equivalent.
- (6) The roof irons or hooks ~~shall~~ will be of proper size and design, securely installed and anchored. Tiebacks of three-quarters-inch manila rope, or its equivalent, ~~shall~~ will serve as an additional means of anchorage, which ~~shall~~ will be installed as nearly as possible at right angles to the face of the building and ~~shall~~ will be securely fastened to a chimney.

(F) Swinging scaffolds.

- (1) Swinging scaffold platforms ~~shall~~ will be no less than twenty inches and no more than thirty-six inches wide overall. The platform ~~shall~~ will be securely fastened to the hangers by U-bolts or by other equivalent means.
- (2) The hangers of swinging scaffolds ~~shall~~ will be capable of sustaining four times the rated load.
- (3) When hoisting machines are used on swinging scaffolds, machines ~~shall~~ will be of an approved design.
- (4) The roof irons or hooks ~~shall~~ will be of proper size and design securely installed and anchored. Tiebacks of three-quarters-inch manila rope, or the equivalent, ~~shall~~ will serve as an additional means of anchorage, which ~~shall~~ will be installed as nearly as possible at right angles to the face of the building and ~~shall~~ will be secured to a structurally sound portion of the building.

- (5) Swinging scaffolds ~~shall~~ will be suspended by wire, synthetic fiber, or natural fiber ropes capable of supporting no less than six times the rated load. All other components ~~shall~~ will be capable of supporting no less than four times the rated load.
- (6) Only treated or protected fiber rope or its equivalent ~~shall~~ will be used for or near any work involving the use of corrosive chemicals.
- (7) The sheaves of all blocks ~~shall~~ will fit the size and type of rope used.
- (8) No more than two employees ~~shall be required~~ are allowed to be on a two-point suspension scaffold designed for a working load of five hundred pounds. No more than three employees ~~shall be required~~ are allowed to be on a two-point suspension scaffold designed for a working load of seven hundred fifty pounds.
- (9) The employer ~~shall~~ will provide an approved safety harness and lifeline for each employee working on a swinging scaffold in compliance with paragraph (I)(6) of rule 4123:1-5-17 of the Administrative Code.
- (10) When two or more scaffolds are used they ~~shall~~ will not be bridged one to another unless they are designed to be bridged, the bridge connections are articulated, and the hoists are properly sized. If bridges are not used, passage may be made from one platform to another only when the platforms are at the same height and are abutting.
- (11) Each swinging scaffold ~~shall~~ will be securely fastened to the building or structure at each work location to prevent it from swaying. Window cleaners' anchors ~~shall not~~ cannot be used for this purpose. Tie-in anchors designed for the rated load of the scaffold may be used.
- (12) The platform of every swinging scaffold ~~shall~~ will be capable of sustaining four times the rated load.
- (13) All swinging scaffolds ~~shall~~ will have standard guardrails and toeboards on all unprotected sides of platforms more than ten feet above the ground.
- (14) The free ends of fall lines from scaffolds ~~shall~~ will be guarded to prevent tangling or snagging.

Effective: 6/30/2023

Five Year Review (FYR) Dates: 2/1/2027

CERTIFIED ELECTRONICALLY

---

Certification

06/20/2023

---

Date

Promulgated Under: 119.03  
Statutory Authority: 4121.12, 4121.121, 4121.13  
Rule Amplifies: 4121.12, 4121.121, 4121.47  
Prior Effective Dates: 04/01/1964, 08/01/1977, 01/01/1986, 04/01/1999,  
07/10/2011, 06/01/2016, 02/01/2022