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Revision of A14.4-2009

American National Standard Safety Requirements for Job-Made Wooden Ladders

American National Standards

ANSI-ASC® A14.4-2018
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American National Standard Safety Requirements for Job-Made Wooden Ladders

Secretariat
American Ladder Institute

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American National Standards Institute, Inc.

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Foreword

(This Foreword is not a part of the American National Standard A14.4 – 2018.)

This standard is a revision of American National Safety Standard for Job-Made Wooden Ladders, ANSI A14.4-2015. It is one of a series of eight standards prepared under the supervision of American National Standards Committee ASC A14. All eight standards have been developed by subcommittees reporting to American National Standards Committee ASC A14.The subcommittees are: A14.l, Portable Wood Ladders; A14.2, Metal Ladders; A14.3, Fixed Ladders; A14.4, Job-Made Wooden Ladders, A14.5, Portable Reinforced Plastic Ladders, A14.7, Mobile Ladder Stands and Mobile Ladder Stand Platforms, A14.9, Ceiling Mounted Disappearing Climbing Systems and A.14.11, Stepstools.

Subcommittee A14.4 was created for the purpose of developing a safety standard covering job-made wooden ladders used on construction sites. It had been the recommendation of the American National Standards Committee on Safety in Construction and Demolition Operations, AlO, and the ANSI Safety Technical Advisory Board that a safety standard for job-made wooden ladders be developed by American National Standards Committee on Construction, Care, and Use of Ladders, ASC A14, and Subcommittee A14.4 on Job-Made Wooden Ladders was established by vote of the ASC A14 Standards Committee at a meeting on May 23, 1972.

Following are the most significant aspects of this current revision:

- Table 1 has been simplified by listing those acceptable lumber grades that are most commonly available, by allowing all lumber grades that meet a minimum threshold, and by allowing the use of lower grade lumber when corresponding ladder components are increased in size.
- Engineering calculations were made affirming the grades and sizes specified in Tables 1, 2 and 3.
- Language on safe use of ladders was simplified for clarity and consistency with other standards.
- Figures were revised with dimensioning details adjusted to coincide with other standards and safer recommended practice.

Suggestions for improvement of this standard will be welcome. They should be sent to the ASC A14 Committee c/o the Amercian Ladder Institute at 330 N. Wabash Avenue, Chicago, IL 60611. All comments must be sent on the Official Comment Form that can be found on the last page of this document. Each comment must include a rationale.

This standard was processed and approved for submittal to ANSI by American National Standards Committee on Construction, Care, and Use of Ladders, ASC A14. Committee approval of the standard does not necessarily imply that all the committee members voted for its approval. At the time it approved this standard, the ASC A14 Committee had the following members:

Dave Plotner, Chair
Don Gibson, Vice Chair
Susan Lane, Secretariat

(continued on next page)

Organization Represented	Name of Representative
American Insurance Association	George Earhart
	Thomas Murray (Alt)
American Ladder Institute	Ryan Moss
Associated General Contractors of America	Charles Bird
	Kevin Cannon (Alt)
Canadian Standards Association	Andrew Grubb
	Mike Dodd (Alt)
Cosco Home and Office Products	Eric Kruse
	Larry Voris (Alt)
Cotterman	Don Gibson
	Peter Catlos (Alt)
Ellis Fall Safety Solutions, LLC	J. Nigel Ellis
	Cody Snyder (Alt)
International Brotherhood of Electrical Workers	James Tomaseki
International Brotherhood of Painters and Allied Trades	Greg Renne
	Dan Penske (Alt)
International Union of Bricklayers & Allied Craftsworkers	Jerry Scarano
	Mike Kassman (Alt)
Little Giant Ladder Systems	Ben Cook
	Christian Smith (Alt)
Louisville Ladder, Inc.	Tom Schmitt
National Frame Builders Association.	Stan Virkler
National Association of Home Builders	Jerry Passman
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NIOSH	Peter Simeonov, Ph. D
	Hongwei Hsiao, Ph.D (Alt)
Precision Ladders	Don McKinney
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Scaffold Industry Association.	Alan Kline (Alt)
Steel Plate Fabricators Association	Ken Wade
Tri-Arc Manufacturing Co., Inc.	Ron Schwartz
	Eric Pucek
U.S. Consumer Product Safety Commission	Thomas Caton*
	Mark E. Kumagai (Alt)*
Werner Company	Brett Lattimer
	Dale King (Alt)
World/Window Cleaning Companies	Carl Pedersen
	Noa W. Pedersen
Independent Specialists	J. Nigel Ellis
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George H. Kyanka
Michael Lorenzo
Richard Martin
Kristopher Selgua
Robert Stuligross
William Switalski
Irving Ojalvo
John Ver Halen

*non-voting advisory member

Subcommittee A14.4 on Job-Made Wooden Ladders, which developed this standard, had the following members:

Steven Cramer, Chairman

David Allie
Charlie Bird
Peter Ruvalcaba
Mike Van Bree
Dan Zarletti

Contents

Tables

Figures

American National Standard Safety Requirements for Job-Made Wooden Ladders

1. General

1.1 Scope

This safety standard prescribes minimum requirements and recommendations for the construction, design, installation, and use of job-made wooden ladders in order to minimize personal injuries. This standard does not cover portable manufactured or portable job-made ladders, permanent fixed ladders, or mobile-equipment ladders.

1.2 Purpose.

The purpose of this standard is to provide reasonable safety for life and limb during any construction or demolition operation where conditions are not practical or permit the erection of temporary stairs or ramps. This standard provides a guide for compliance with minimum required specifications when job-made wooden ladders are being constructed for temporary access on construction and demolition operations.

1.3 Characteristics of a Job-Made Ladder.

Job-made ladders are custom-made to fit specific job situations during construction or demolition operations. Their primary purpose is to provide access to or egress from a work area. Job-made access ladders are not intended to serve as a work station. They are temporary in nature and serve only until a particular phase of work is completed or until permanent stairways or fixed ladders are ready for use.

1.4 Application.

This standard is designed for voluntary adoption by contractors or to serve as a guide to governmental authorities or other regulatory bodies in the formation of laws or regulations. The methods to be employed to assure compliance with this standard shall be determined by the proper regulatory or administrative authority. To secure uniform application of this standard, it is recommended that suggestions involving changes in the requirements or questions over the interpretation of them be referred to the American National Standards Institute, 11 West 42nd St., New York, N.Y. 10036 or to the secretariat of this standard:

AMERICAN LADDER INSTITUTE (ALI)
c/o SMITHBUCKLIN
330 NORTH WABASH AVENUE
SUITE 2000
CHICAGO, ILLINOIS 60611

1.5 Mandatory and Advisory Rules.

The word “shall” is to be understood as denoting a mandatory requirement. The work “should” is to be understood as denoting a recommendation.

1.6 Equivalent.

The word “equivalent” in this standard means a construction, connection, or material providing equal performance.

2. Related Standards

This standard is intended for use in conjunction with the following American National Standards or latest revision:

Standard Specifications for Adhesives for Structural Laminated Wood Products, ASTM D2559-2004

National Institute of Standards and Technology, American Softwood Lumber Standard, PS 20-05

3. Definitions

Cleats. Horizontal ladder crosspieces used by a person in ascending or descending a ladder. Sometimes called steps or rungs.

Double-cleat ladder. A job-made wooden ladder with two side rails and a center rail, all connected with continuous cleats, and of sufficient width to allow for two-way traffic for personnel ascending and descending.

Ladder. A device incorporating or employing steps, rungs, or cleats on which a person may ascend or descend.

Pitch. The included acute angle between the horizontal plane and the ladder, measured on the side of the ladder opposite the climbing side. It is usually expressed as H/L: the horizontal (H) distance from the base of the ladder to the supporting surface divided by the working length (L) of the ladder.

Rail. The side members to which rungs, steps, or cleats are attached at uniform intervals.

Security attachments. Materials and fasteners used to secure the base or top of the ladder to a fixed object. See Figure 10.

Single-cleat ladder. A job-made wooden ladder that consists of a pair of side rails, usually parallel, connected together with cleats that are joined to the side rails at regular intervals.

Stress-grade lumber. Lumber to which allowable stress (allowable stress design) or reference strengths (load and resistance factor design) values have been assigned and which is identified by the grademark or certificate of inspection issued by a lumber inspection bureau or agency accredited by the Board of Review of the American Lumber Standard Committee, the grademark specifying the grade, species, and dryness of the lumber. Stress-grade lumber shall be used in the side rails and cleats of job-made wooden ladders.

Temporary Use. A use defined by limited time, typically corresponding to not more than the total period of construction for a single project.

Working length. The length of a non-self-supporting ladder measured along the rails from the base of the ladder to the point of bearing at the top.

4. Materials

4.1 General.

All wood parts at the time of construction shall be dressed on all sides, reasonably free from sharp edges and splinters, and unchanged from mill condition. Fasteners shall be driven full length and countersunk not more than 1/8 in.

4.2 Side Rails.

Lumber for side rails shall be one of the species groups and minimum grades specified in Table 1, and shall be stamped with a grademark or certificate of inspection issued by a lumber inspection bureau or agency accredited by the Board of Review of the American Lumber Standard Committee. The grade and species of wood selected for side rails and cleats shall have an allowable stress in bending of at least 1200 psi or as indicated in Table 1.

4.2.1 Finger-Jointed Lumber (All Species). When rails members cannot be procured full length, the use of structural finger-jointed lumber shall be permitted to be used interchangeably with solid-sawn lumber of the same grade and species if the finger joints are manufactured with an adhesive meeting the requirements of ASTM D2559. Structural finger-jointed lumber shall be identified by the grade mark of, or certificate of inspection from a lumber grading or inspection agency that has been approved by an accreditation body that complies with the U.S. Department of Commerce (DOC) PS 20 or equivalent. The grade mark and certification of inspection for structural finger-jointed lumber shall indicate that joint integrity is subject to qualification and quality control. When finger-jointed lumber is marked “STUD USE ONLY” or “VERTICAL USE ONLY”, such lumber shall not be used in job-made wooden ladders.

4.3 Cleats

4.3.1 Board Material. Nominal 2 x 4 or nominal 2 x 6 stress-grade dimension lumber with minimum grades as listed in Table 1 shall be used for cleat material.

4.4 Fasteners

4.4.1 Fasteners for the assembly of job-made wooden ladders include plain-shank and helically threaded steel nails, as well as staples and wood screws of equivalent shank withdrawal, head pull-through, and bending/shear resistance, as determined by test data or published formulas and tabulated values. Dry wall or deck screws shall not be used.

4.4.2 Bolts for splicing side rails of job-made wooden ladders shall be either common steel bolts provided with a 1-in. diameter, 3/32-in. thick steel washer under the bolt head or ½ in. diameter carriage bolts. All bolts shall have a nut and a lock washer below the nut.