ANSI A14.2-2017

American National Standard for Ladders — Portable Metal — Safety Requirements

American National Standards

ANSI A14.2-2017
Revision of ANSI A14.2-2007

American National Standard for Ladders — Portable Metal — Safety Requirements

Secretariat
American Ladder Institute

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American National Standard

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Foreword

(This Foreword is not a part of American National Standard A14.2-2017.)

This standard on portable ladders is one of many American National Standards prepared under the supervision of the ANSI Accredited Standards Committee on Safety in the Construction, Care, and Use of Ladders, A14. Subcommittees that report to the American National Standards Committee A14 have developed all of the standards. The subcommittees are A14.1, Portable Wood Ladders; A14.2, Portable Metal Ladders; A14.3, Fixed Ladders, A14.4, Job-Made Ladders; and A14.5, Portable Reinforced Plastic Ladders, and 14.9, Ceiling Mounted Disappearing Climbing Systems.

All standards, except A14.7 Mobile Ladders Stands and Mobile Ladder Stand Platforms, derive from the original American National Standards Safety Code for

Construction, Care, and Use of Ladders, which was first approved on July 2, 1923. Revisions were approved on April 11, 1935; April 2, 1948; and November 10, 1952.

The earlier editions contained some treatment of metal and fixed ladders. Requirements for these types were removed from the 1948 revision because rapid development in the metal ladder field warranted special consideration and treatment of metal ladders, and fixed ladders (usually metal) in separate standards.

The Metal Ladder Manufacturers Association is responsible for initiating the standard on portable metal ladders. This group prepared the original draft and submitted it to Standards Committee A14 for consideration in May 1951. Subcommittee A14.2 was then created to review the document and make any changes necessary to conform to the requirements of all the interested groups. After consideration and some revision by the subcommittee, nearly 200 copies of the draft were sent to various organizations and individuals for review and comment. The suggestions received were considered in the preparation of the final draft, which was submitted to the Standards Committee for letter ballot in December 1955, and approved in 1956. Subcommittee A14.2 also developed the 1972 edition.

Responding to a Consumer Product Safety Commission challenge in August 1975, the A14 Committee mounted a three-prong attack to upgrade the portable ladder standards within the consensus framework of developing standards. Three Task Forces — Anthropometric Testing, and Labeling — were established in October 1975.

Without question the Testing Task Force carried out the most massive technically difficult task, which included a significant amount of human-factors work. Over 100 known ladder experts were solicited to join this task force and provide their technical expertise. The work involved 50 meetings, over 400 test documents and the use of numerous test ladders over a period of nearly two years. The cost of the project has been conservatively estimated at over $300,000.

At the August 11, 1977, joint meeting of the Testing Task Force and the A14 Advisory Committee, 23 procedures were presented. These procedures, with an accompanying rationale based upon statistical and human factors data, were distributed to the three portable-ladder subcommittees for review and incorporation into the standards. Recommendations for nomenclature, and for care and use of ladders had been previously balloted. In addition, the Ladder Use Survey Form and Bi-Level Fall Victim Report Form (that have been included in the Appendixes), had also been balloted so the more technical material from the Testing Task Force could receive full attention of the three subcommittees.

Test procedures were developed for three different applications, namely, design verification, quality control, and in-service testing. Design verification tests would generally be conducted on a one-time basis during the original design

development of the product and would usually be destructive tests. The manufacturer on an on-going basis would conduct quality control tests; some of the tests would be destructive and some would be nondestructive. In-service tests would be conducted by the user on a periodic basis and would be nondestructive in nature.

ANSI A14.2-1981 was approved March 4, 1980 with an effective date of March 4, 1982. This 2 year period was to allow the manufacturers the necessary lead time to evaluate their products for conformance to the 1981 edition of the three portable ladder standards, to redesign and test their products where applicable, to design and build the required manufacturing tooling and machinery, and to convert their manufacturing operations to produce the revised products.

During development of product for compliance with the 1981 revision, experience by some of the manufacturers indicated that the inclined load test was not practical when applied to all available length ladders. Also, recommendations were received for clarifications in test procedure descriptions. In the course of resolving these questions, evidence was produced to warrant modifications in the label test requirements and further investigations brought about changes in the label test specifications.

To allow time for investigating these issues, the effective date of the 1981 revision was postponed to June 4, 1982 and then to October 4, 1982. Once the issues were resolved, ANSI A14.2-1982 was approved with the needed changes incorporated and an effective date of October 4, 1982.

In the 1990 revision, several issues, which had arisen since the 1982 revision, were addressed. Most significantly, requirements were developed to cover the multipurpose articulated ladder. In addition the label/marking section improved the graphics as well as presented new labels.

Considerable effort went into preparing the 2000 revision to assure consistency between the A14.2 standard for portable metal ladders and the new revisions of A14.1 (portable wood ladders) and A14.5 (portable reinforced plastic ladders) standards.

In the 2007 revision, as a result of efforts by an Articulated Ladder Task Force, additional dynamic testing was added to the testing requirements for articulated ladders. Additionally, requirements for ladders with a 375 pound duty rating, designated as “Special Duty Type IAA” were incorporated within the ANSI A14.2 and A14.5 standards. Requirements for Special Duty Type IAA ladders were previously developed and issued in the ANSI A14.10-2000 standard. The A14.10 subcommittee was originally formed in order to quickly respond to a petition to ANSI by cable TV and electric companies for a higher duty rating ladder. After incorporation of the Special Duty Type IAA requirements into the A14.2 and A14.5 standards, the A14.10 standard was withdrawn.

In this current revision, as a result of efforts by a Telescoping Ladder Task Force, specifications and testing requirements for telescoping ladders are being added to the standard. As a result of further efforts by the Articulated Ladder Task Force, additional specifications and testing requirements are being added to the standard for articulated extendable ladders. A generic test surface was adopted for those tests requiring a specific floor surface or top support for the ladder. The Labeling/Marking Task Force has provided revised non-mandatory labeling illustrations in Appendix A and B that incorporate the ANSI Z535.4 guidelines with the long standing labeling practices of ANSI ASC A14. The format of the standard has modified to place all tables and figures at the end.

Each revision of the standard has processed and approved for submittal to ANSI by American National Standards Committee on Safety in the Construction, Care, and Use of Ladders, A14. Committee approval of the standard does not necessarily imply that all the committee members voted for its approval.

Suggestions for improvement of this standard are welcome. They should be sent to the American Ladder Institute, 330 N. Wabash Ave., Suite 2000, Chicago, IL 60611.

At the time it approved this standard, the A14 Committee had the following members:

Organization Represented	Name of Representative
American Insurance Association	George Earhart
American Ladder Institute	Ron Schwartz
	Marc McConnell (Alt)
American Society of Safety Engineers	Michael Lorenzo
	Tim Fisher (Alt)
Associated General Contractors of America	Charles E. Lord
	Tim Fischer (Alt)
Canadian Standards Association	Dave Shanahan
Cosco Home and Office Products	Eric Kruse
	Larry Voris (Alt)
Cotterman Company	Don Gibson
	Pete Catlos (Alt)
Ellis Fall Safety Solutions, LLC Div. of DSC	J. Nigel Ellis
	Cody Snyder (Alt)
Grainger Industrial Supply	Richard Martin
	John Foston (Alt)
International Brotherhood of Electrical Workers	Christian Duva
International Union of Painters and Allied Trades	Greg Renne
	Dan Penski (Alt)
International Union of Bricklayers & Allied Craftsworkers	Gerald Scarano
	Mike Kassman (Alt)
Little Giant Ladder Systems	Ben Cook
Louisville Ladder, Inc.	Tom Schmitt
National Association of Home Builders	Jerry Passman
	Robert Matuga (Alt)
National Frame Builders Association	Stan Virkler
NIOSH	Peter Simeonov, Ph. D
	Hongwei Hsiao, Ph. D (Alt)
Precision Ladders	Don McKinney
	Steve Richey (Alt)
Risk Retention Services	Paul B. Junius
	Robert G. Stuligross (Alt)
Scaffold Access Industry Association	Alan D. Kline
State University of New York	George H. Kyanka
Steel Plate Fabrication Association	Ken Wade
Switalski Engineering, Inc.	William Switalski
Technology Associates, LLC	Irving U. Ojalvo
	Kristopher Selgua (Alt)
Tri-Arc Manufacturing Co., Inc.	Ron Schwartz
	Eric Pucek (Alt)
U.S. Consumer Product Safety Commission	Thomas Caton*
	Mark E. Kumagai* (Alt)
Ver Halen Engineering, P.C.	Jon Ver Halen
Werner Ladder	Brett Latimer
	Dale King (Alt)

World/General Window Cleaning Companies
(formerly Illinois Association of Building Maintenance Contractors). . . . . Carl Pedersen
Noa W. Pedersen (Alt)
Independent Specialists. . . . . Dr. Donald Bloswick
Dr. George H. Kyanka
Dr. Irving Ojalvo

*non-voting advisory member

Subcommittee A14-2 on portable ladders, which revised this standard, consists of the following members:

Erik Knox, Chair
Ben Cook
Ryan Crawford
Jack Krafchick
Eric Kruse
Irving Ojalvo
Dave Plotner
Greg Renne
Thomas Schmitt
Mike Van Bree

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1. Scope and Purpose

1.1 Scope

This standard prescribes rules governing the safe construction, design, testing, care and use of portable metal ladders of various types and styles. Ladder Types included are:

Duty Rating	Ladder Type	Working Load (pounds)
Special Duty	IAA	375
Extra Heavy-Duty	IA	300
Heavy-Duty	I	250
Medium-Duty	II	225
Light-Duty	III	200

Ladder styles include ladder type step stools, portable extension, step, trestle, sectional, combination, single, platform, articulating, articulating extendable, and telescoping ladders, but excluding ladders in and on mines, the fire services, mobile equipment, hoisting equipment, work platforms, antenna communications towers, transmission towers, utility poles, and chimneys. It does not cover special-purpose ladders that do not meet the general requirements of this standard, nor does it cover ladder accessories, including, but not limited to, ladder levelers, ladder stabilizers or stand-off devices, ladder jacks, or ladder straps or hooks, that may be installed on or used in conjunction with ladders.

Note: Ladder type step stools are covered by A14.2. It is recognized that a step stool standard is under development. When the step stool standard (A14.11) becomes effective, A14.2 will no longer cover ladder type step stools.

These requirements are also intended to prescribe rules and criteria for labeling/marking of the kinds of portable ladders cited in this standard, but exclusive of furniture type step stools and special purpose ladders. These labeling/marking requirements do not apply to those situations where training, supervision, or documented safety procedures would be in conflict, or serve in lieu of, these labeling/marking requirements.

1.2 Purpose

The purpose of this standard is to provide reasonable safety for life, limb, and property. In order to develop an effective safety program, the standard may serve also as a basis for purchase requirements and for instructions in personnel training, and in the preparation of motivational/ instructional material such as safety practices, manuals, posters, and the like.

This standard is also intended to provide the manufacturer, purchaser, and user of metal ladders with a set of performance and dimensional requirements against which a product may be compared. It is not the purpose of this standard to specify all the details of construction of portable metal ladders. The limitations imposed are for the purpose of providing adequate general requirements and testing methods needed for consistency.