ASME B107.43-2002
(Revision of ASME B107.43M-1998)

WOOD-SPLITTING WEDGES

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

The American Society of Mechanical Engineers

AN AMERICAN NATIONAL STANDARD

WOOD-SPLITTING WEDGES

ASME B107.43-2002

(Revision of ASME B107.43M-1998)

Date of Issuance: February 7, 2003

This Standard will be revised when the Society approves the issuance of a new edition. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME Web site under the Committee Pages at http://www.asme.org/codes/ as they are issued.

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The Standards Committee that approved the code or standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment that provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not "approve," "rate," or "endorse" any item, construction, proprietary device, or activity.

ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor assume any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

The American Society of Mechanical Engineers
Three Park Avenue, New York, NY 10016-5990

CONTENTS

FOREWORD

The American National Standards Commitee B107, Socket Wrenches and Drives, under sponsorship of The American Society of Mechanical Engineers, was reorganized as an ASME Standards Committee, and its title was changed to Hand Tools and Accessories. In 1996, the B209 Committee, which had published an earlier version of this Standard as B209.3, merged with the B107 Committee, and the B107 Committee scope was expanded to include safety considerations.

The purposes of this Standard are to define safety considerations specifically applicable to wood-splitting wedges; to specify test methods; to evaluate performance relating to the defined safety considerations; and to indicate limitations of safe use.

A principal change in this edition of the Standard is the allowance of any material that meets the performance and safety requirements specified.

The format of this Standard is in accordance with *The ASME Codes & Standards Writing Guide 2000*. Requests for interpretations of the technical requirements of this Standard should be expressed in writing to the Secretary, B107 Committee, at the address below.

Suggestions for the improvement of this Standard are welcome. They should be addressed to The American Society of Mechanical Engineers, Secretary, B107 Standards Committee, Three Park Avenue, New York, NY 10016-5990.

The requirements of this Standard become effective at the time of publication. This revision was approved as an American National Standard on September 16, 2002.

ASME STANDARDS COMMITTEE B107
Hand Tools and Accessories

(The following is the roster of the Committee at the time of approval of this Standard.)

OFFICERS

G. E. Olson, *Chair*
J. R. Bird, *Secretary*

COMMITTEE PERSONNEL

J. R. Bird, The American Society of Mechanical Engineers
J. D. Davidson, Sears Roebuck & Co.
J. S. Foote, Trade Association Mgt, Inc.
A. Hershkovitz, Consultant
H. Kimball, Naval Air Warfare Center
R. R. McCullough, Consultant
D. S. McKittrick, Western Forge Corp.
G. E. Olson, Gene Olson, Engineering Consultant, Ltd.
W. T. Pagac, Snap-on Inc.
D. Eggert, *Alternate,* Snap-on Inc.
J. Ster, General Services Administration
W. R. Wacker, BAC Associates, Inc.
R. B. Wright, Wright Tool Co.
W. Snyder, *Alternate,* Wright Tool Co.

SUBCOMMITTEE 4 — STRIKING AND STRUCK TOOLS

G. E. Olson, *Chair,* Gene Olson, Engineering Consultant, Ltd.
J. Combites, Vaughan & Bushnell
J. D. Davidson, Sears Roebuck & Co.
W. T. Pagac, Snap-on Inc.

CORRESPONDENCE WITH THE B107 COMMITTEE

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B107 Standards Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the applications of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Interpretations. Upon request, the B107 Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B107 Standards Committee.

The request for interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. The inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an intepretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The B107 Standards Committee regularly holds meetings that are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B107 Standards Committee.

WOOD-SPLITTING WEDGES

1 SCOPE

This Standard provides performance and safety requirements for splitting wedges that are used specifically for splitting wood. It is intended to serve as a guide in selecting, testing, and using the hand tools covered. It is not the purpose of this Standard to specify the details of manufacturing.

This Standard is also meant to serve as a guide in developing manuals and posters and for training personnel in safe practices.

This Standard may be used as a guide by state authorities or other regulatory bodies in the formulation of laws or regulations. It is also intended for voluntary use by establishments that use or manufacture the tools covered. The methods employed to ensure compliance with this Standard shall be determined by the proper regulatory or administrative authority.

2 NORMATIVE REFERENCES

The following documents form a part of this Standard to the extent specified herein. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below. Copies of the publications may be obtained from publishers as indicated.

ANSI Z87.1-1998, Practice for Occupational Educational Eye and Face Protection

ANSI Z535.4-1998, Product Safety Signs and Labels

Publisher: American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036

ASTM E 18-00, Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

Publisher: American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428

Guide to Hand Tools — Selection, Safety Tips, Proper Use, and Care

Publisher: Hand Tools Institute (HTI), 25 North Broadway, Tarrytown, NY 10591

3 DEFINITIONS

See Figs. 1, 2, and 3 as applicable.

bevel: the angular portion of the wedge adjacent to the splitting edge and extending to the taper.

chamfer: the angled flat surface or equivalent radius of the wedge encircling the perimeter of the struck face.

equivalent: the word *equivalent* in this Standard shall be interpreted to mean alternate designs or features that will provide an equal degree of safety.

guide grooves or wings: when provided, the long, narrow impressions or protrusions located on opposite sides of the taper.

hardness: the condition of the wedge resulting from heat treatment.

head: the portion of the wedge between the struck face and the taper.

safety message: the information imprinted on or affixed to the wedge that is intended to promote safety.

shall and should: mandatory requirements of this Standard are characterized by the word *shall*. If a provision is of an advisory nature, it is indicated by the word *should*, or is stated as a recommendation.

splitting edge: the edge formed by the bevel directly opposite the struck face.

struck face: the portion of the wedge located adjacent to the head directly opposite the splitting edge.

taper: the portion of the wedge with a gradually reducing cross-sectional area, located between the head and the bevel.

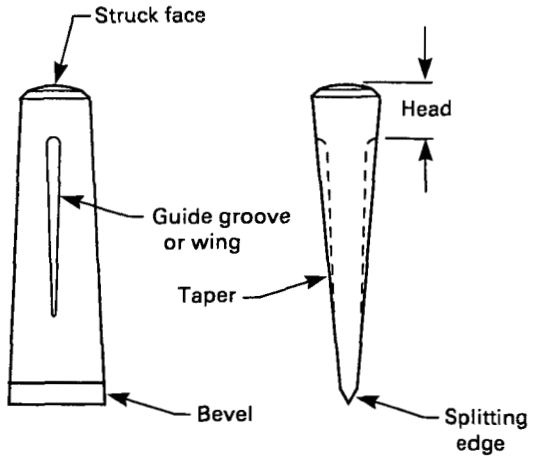

FIG. 1 WOOD-SPLITTING WEDGE NOMENCLATURE

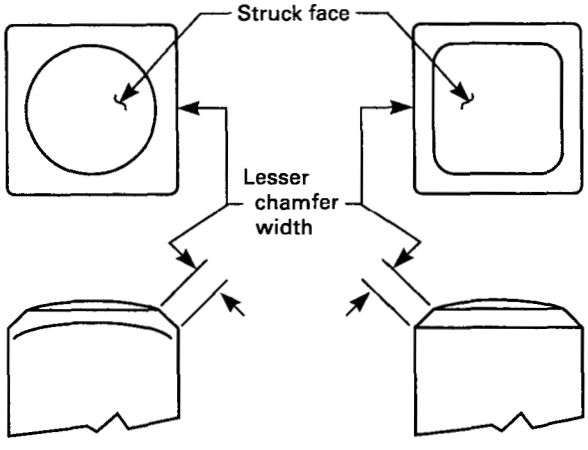

FIG. 2 NOMENCLATURE AND ALTERNATE HEAD DESIGNS FOR SQUARE HEAD WEDGES

4 REQUIREMENTS

4.1 Design

Wood-splitting wedges shall have a splitting edge and taper for splitting wood, and a struck face to be struck by the appropriate striking tool. An *appropriate striking tool* shall mean a sledge or woodchopper's maul with a striking face not less than 0.375 in. (9.50 mm) larger in diameter than the struck face of the wood-splitting wedge.

Typical styles of wood-splitting wedges are shown in Figs. 1, 2, and 3, and their uses are listed below.

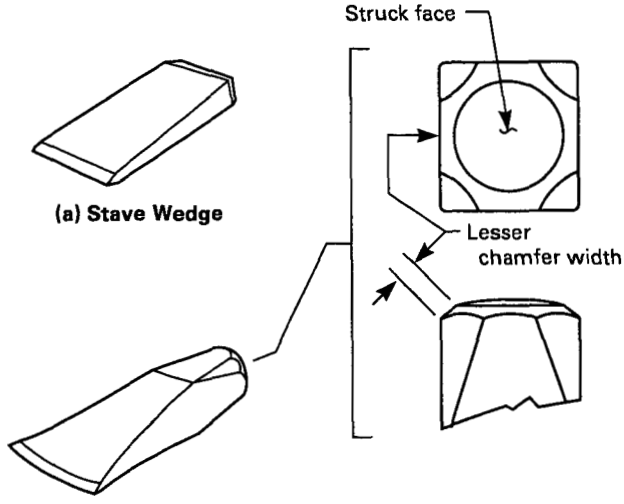

FIG. 3 STAVE AND OREGON SPLITTING WEDGES

The names are those generally recognized; however, styles are not limited to those named or illustrated.

Style	Applications
Square head	Splitting logs and wood products
Oregon splitting	Splitting logs and wood products
Stave wedge	Splitting narrow strips of wood, such as barrel staves

4.1.1 The struck face shall have a flat or convex shape.

4.1.2 The struck face of all wedges shall have a chamfer of approximately 45 deg (or equivalent radius) around the perimeter, with the lesser width equal to approximately one-tenth of the minimum head width. For example, if the minimum head width equals 2 in. (50.8 mm), then the lesser chamfer width will equal approximately 0.2 in. (5 mm).

4.1.3 All wedges shall be free of nonfunctional sharp edges, points, and surface roughness that could inflict personal injury on the user when handling the tool.

4.1.4 Wedges shall pass the tests outlined in para. 5.

4.2 Materials

The materials used in the manufacture of wedges shall be such as to produce wedges conforming to the requirements specified herein.

4.3 Mechanical Properties

The hardness of the wood-splitting wedges shall not exceed 35 HRC or equivalent.

5 TESTS

Many tests required herein are inherently hazardous, and adequate safeguards for personnel and property shall be employed in conducting such tests.

Separate (new) wedges shall be used for each test. Failure to meet the requirements of either test indicates that the wedges do not comply with this Standard.

5.1 Hardness Determination Test

Hardness determination shall be made on a fixtured wood-splitting wedge or on a mounted or unmounted specimen that has been cut from the tool using the wet abrasive or other equivalent method. Any hardness test will be acceptable that uses equipment and methods equivalent to Rockwell hardness determination as specified in ASTM E18.

5.2 Struck Face Test

The wedge shall be vertically mounted and supported with the splitting edge resisting directly on a mild steel plate of not less than 0.75 in. (19.1 mm) thickness. The steel plate shall be rigidly supported on an anvil or other similar device of sufficient mass to resist deflection. Prior to conducting this test, care should be taken to blunt the splitting edge to ensure that the impact energy is not expended in deformation of the splitting edge. A steel weight of 10 lb (4.5 kg) with a striking face hardness of 45 to 60 HRC shall be dropped unrestricted from a height of 5.0 ft (1.5 m) onto the wedge a minimum of five times. Typically, the weight is cylindrical and is dropped through a seamless tube slightly larger than the diameter of the weight. The weight shall be dropped in such a manner that each drop applies the full force squarely to the struck face of the wedge.

The struck face shall not crack or chip. Normal deformation of the struck face shall be permitted.[1]

6 SAFETY REQUIREMENTS AND LIMITATIONS OF USE

Instructors and employers shall stress proper and safe use of wedges and shall emphasize the need to wear, and ensure the use of, safety goggles. The publication *Guide to Hand Tools — Selection, Safety Tips, Proper Use, and Care* provides guidelines for the safe use of these tools.

(a) Wood-splitting wedges are special-purpose tools designed and intended only for use in splitting wood.

(b) Wood-splitting wedges shall not be struck with an ax or hatchet.

(c) A blow from an appropriate striking tool shall be struck squarely, with the striking face parallel with a struck face of the wedge. Glancing blows, overstrikes, and understrikes should be avoided.

An *appropriate striking tool* shall be a sledge or woodchopper's maul with a striking face not less than 0.375 in. (9.53 mm) larger in diameter than the struck face of the wood-splitting wedge.

(d) Safety goggles or equivalent eye protection conforming to ANSI Z87.1 shall be worn by the user and all persons in the immediate area where any wedge is being used, to avoid possible eye injury from flying objects.

(e) A woodchopper's maul or an ax shall always be used to make a starting notch in the wood to be split.

(f) Wedges shall be inspected prior to each use, and their use discontinued at the first sign of chipping or cracking of any portion of the struck face or cutting edge.

(g) No part of the wedge shall be ground, welded, treated by reheating, or otherwise altered from the original conditions as furnished by the manufacturer, except as indicated in paras. 6(h) and 6(i).

(h) Dulling of the splitting edge may occur from tool usage. It shall be reshaped or redressed to the original contour only by the use of a whetstone or hand file.[2]

(i) Any mushrooming of the struck face from tool usage shall be promptly redressed to the original contour by use of a hand file.[2]

[1] The test is so severe that a degree of permissible deformation, such as denting of the splitting edge and struck face, can be anticipated. A much less severe test would avoid this, but it would not provide the level of safety assurance desired.

[2] It is understood that industrial users with adequate facilities and properly trained personnel may choose to redress or resharpen these tools by other means without altering the metallurgical characteristics of the tools.

(j) Each wedge shall be permanently stamped or marked by the manufacturer with the following message or the equivalent:

WARNING
WEAR SAFETY GOGGLES
USER AND BYSTANDER

This safety message shall be located in a position that will not interfere with the quality or performance of the tool. The principles given in ANSI Z535.4 shall be used as a guide for alternate, equivalent methods of labeling.

ASME Services

ASME is committed to developing and delivering technical information. At ASME's Information Central, we make every effort to answer your questions and expedite your orders. Our representatives are ready to assist you in the following areas:

ASME Press
Codes & Standards
Credit Card Orders
IMechE Publications
Meetings & Conferences
Member Dues Status
Member Services & Benefits
Other ASME Programs
Payment Inquiries
Professional Development
Short Courses
Publications
Public Information
Self-Study Courses
Shipping Information
Subscriptions/Journals/Magazines
Symposia Volumes
Technical Papers

How can you reach us? It's easier than ever!

There are four options for making inquiries* or placing orders. Simply mail, phone, fax, or E-mail us and an Information Central representative will handle your request.

Mail
ASME
22 Law Drive, Box 2900
Fairfield, New Jersey
07007-2900

Call Toll Free
US & Canada: 800-THE-ASME
(800-843-2763)
Mexico: 95-800-THE-ASME
(95-800-843-2763)
Universal: 973-882-1167

Fax—24 hours
973-882-1717
973-882-5155

E-Mail—24 hours
Infocentral@asme.org

* Information Central staff are not permitted to answer inquiries about the technical content of this code or standard. Information as to whether or not technical inquiries are issued to this code or standard is shown on the copyright page. All technical inquiries must be submitted in writing to the staff secretary. Additional procedures for inquiries may be listed within.

AMERICAN NATIONAL STANDARDS FOR HAND TOOLS

Socket Wrenches, Hand (Inch Series) B107.1-2002
Socket Wrenches, Extensions, Adaptors, and Universal Joints,
Power Drive (Impact) (Inch Series) B107.2-2002
Socket Wrenches, Power Drive (Non-Impact) (Inch Series) ..... B107.3-1978(R1991)
Driving and Spindle Ends for Portable Hand, Impact, Air, and
Electric Tools (Percussion Tools Excluded) B107.4M-1995
Socket Wrenches, Hand (Metric Series) B107.5M-2002
Adjustable Wrenches B107.8M-1996
Handles and Attachments for Hand Socket Wrenches — Inch and Metric Series B107.10M-1996
Pliers: Diagonal Cutting and End Cutting B107.11-2002
Nut Drivers (Spin Type, Screwdriver Grip) (Inch Series) B107.12-1997
Pliers — Long Nose, Long Reach B107.13M-1996
Hand Torque Tools B107.14M-1994
Flat Tip Screwdrivers B107.15-2002
Shears (Metal Cutting, Hand) B107.16M-1998
Gages, Wrench Openings, Reference B107.17M-1997
Pliers (Wire Twister) B107.18M-1996
Pliers, Retaining Ring ..... B107.19-1993(R1998)
Pliers (Lineman's, Iron Worker's, Gas, Glass, Fence, and Battery) B107.20M-1998
Wrench, Crowfoot Attachments B107.21-1998
Electronic Cutters B107.22M-1998
Pliers, Multiple Position, Adjustable B107.23M-1997
Pliers — Performance Test Methods B107.25M-1996
Pliers, Multiple Position (Electrical Connector) B107.27-1996
Electronic Torque Instruments B107.28M-1997
Electronic Tester, Hand Torque Tools B107.29M-1998
Cross Tip Screwdrivers B107.30-2002
Screwdrivers, Cross Tip Gaging B107.31M-1997
Socket Wrenches for Spark Plugs B107.34M-1997
Nut Drivers (Spin Type, Screwdriver Grip) (Metric Series) B107.35M-1997
Pliers: Locking, Clamp, and Tubing Pinch-Off B107.36-2002
Electronic Pliers B107.38M-1998
Nail Hammers — Safety Requirements B107.41M-1997
Hatchets: Safety Requirements B107.42M-1997
Wood-Splitting Wedges B107.43-2002
Glaziers' Chisels and Wood Chisels B107.44-2002
Ripping Chisels and Flooring/Electricians' Chisels B107.45-2002
Stud, Screw, and Pipe Extractors: Safety Requirements B107.46M-1998
Metal Chisels: Safety Requirements B107.47M-1998
Metal Punches and Drift Pins: Safety Requirements B107.48M-1998
Nail Sets: Safety Requirements B107.49M-1998
Brick Chisels and Brick Sets: Safety Requirements B107.50M-1998
Star Drills: Safety Requirements B107.51-2001
Nail-Puller Bars: Safety Requirements B107.52M-1998
Ball Peen Hammers: Safety Requirements B107.53M-1998
Heavy Striking Tools: Safety Requirements B107.54-2001
Axes: Safety Requirements B107.55M-2002
Body Repair Hammers and Dolly Blocks:Safety Requirements B107.56-1999
Bricklayers' Hammers and Prospecting Picks: Safety Requirements B107.57-2001
Riveting, Scaling, and Tinner's Setting Hammers: Safety Requirements B107.58M-1998
Slugging and Striking Wrenches B107.59-2002
Wrenches B107.100-2002

The ASME Publications Catalog shows a complete list of all the Standards published by the Society. For a complimentary catalog, or the latest information about our publications, call 1-800-THE-ASME (1-800-843-2763).

ISBN 0-7918-2795-X

9 780791 827956

N14402