MH1 – 2016
(Revision of ASME MH1-2005)

Pallets, Slip Sheets, and Other Bases for Unit Loads

Approved: 8 Jan 2016

Abstract

This standard pertains to pallets used in the unit load method of assembling, stacking, storing, handling, and transporting materials and products. The standards were to accomplish the following: define terminology and nomenclature associated with pallets; apply to pallets irrespective of components and materials used in their fabrication; provide a series of recommended pallet dimensions and sizes; describe procedures for pallet sampling, inspection and testing; indicate procedures for designating pallet requirements.

Developed by:

MH1 Committee, Pallets, Slip Sheets, and other Bases for Unit Loads

Published by MH1 Secretariat:

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American National Standards Institute, Inc.

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Designation:	Cite the standard designation, for example, MH1-2016.
Subject:	Cite the applicable paragraph number(s) and provide a concise description.
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 approval of a proprietary design or situation. The inquirer may also include any plans or drawings which are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format will be required to be rewritten in this format prior to being answered. The inquiry shall be forwarded promptly to the Chair of the MH1 Committee by the MH1 Secretary. Within forty-five (45) days, the inquirer shall receive a response from the MH1 Secretary.

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This standard was approved by ANSI on 8 Jan 2016. It was developed with the sole intent of offering information to parties engaged in the manufacture, marketing, purchase, or use of pallets, slip sheets and other bases for unit loads. This standard is advisory only and acceptance is voluntary and the standard should be regarded as a guide that the user may or may not choose to adopt, modify, or reject. The information does not constitute a comprehensive safety program and should not be relied upon as such. Such a program should be developed and an independent safety adviser consulted to do so.

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Foreword (This foreword is not part of American National Standard MH1 – 2016)

Hundreds of millions of wood pallets were manufactured in the United States of America during each of the past 30 years, considerably more than the 37 million pallets produced during 1953 when the ASME Standards Committee MH1 was established. It was estimated that approximately 20% of the total annual production of lumber in the United States was required for the assembly of these pallets. One pallet size of the approximately 100 sizes used, the 48 x 40 in. and the 40 x 48 in. (1219 x 1016 mm and 1016 x 1219 mm) size, accounts for more than one-third of all the pallets produced; while ten additional sizes account for more than 1% of all pallets produced. Pallets made of metal, paper, and plastics are also manufactured in the United States. However, their production is limited and no production statistics are available.

The need for standardization of pallets used in the unit-load method of assembling, stacking, storing, handling, and transporting materials and products, originated from the interconnecting nature of pallet usage. The great variety of pallet sizes and constructions restricted their movement through manufacturing and distributing channels. This variety was the result of each user treating pallet design as a private problem. More intense application of the unit-load method of assembling, stacking, storing, handling, and transporting of commodities in the United States and in international trade fostered extensive use of pallets both as captive and exchange pallets. The latter pallets, especially, required maximum standardization for any exchange to be successful.

Some industries and military services developed, by evolution, certain pallet standards to solve specific problems which are also existent with other users. Consequently, their sizes and constructions of pallets established a pattern of value to all users.

The American National Standards Institute (formerly the American National Standards Association) project on pallet standardization was initiated in October 1953. A Material Handling Standards Committee, MH1 (initially B69), was organized to coordinate information and prepare standards under the scope of standardization of nomenclature, types, sizes, materials, and components of pallets, including sampling, inspection, and test procedures. The standards pertain to pallets used in the unit-load method of assembling, stacking, storing, handling, and transporting materials and products. The standards were to accomplish the following:

(a) define terminology associated with pallets;
(b) apply to pallets irrespective of components used in their fabrication;
(c) provide a series of recommended pallet dimensions;
(d) describe procedures for pallet testing; and
(e) indicate procedures for designating pallet requirements.

During 1967, the MH1Committee was reorganized. A Nominating Committee was established in compliance with the procedures of ANSI. The Nominating Committee selected officers for the MH1Committee during 1968 and, in turn, became the nucleus for the new MH1 Executive Committee to guide the continuing revision activities and organize the task groups to be formed.

The name of the MH1Committee was changed in 1979 to Standardization of Pallets, Slip Sheets, and Other Bases for Unit Loads by action of ANSI's Physical Distribution Standards Management Board in light of the establishment of the MH1 Subcommittee on Standardization of Slip Sheets in March 1979. The following scope of the Committee was established: standardization of nomenclature, types, sizes, materials, and components of pallets, slip sheets, and other unit load bases, including sampling, inspection, and test procedures.

The MH1Committee, consisting of individual members and representatives of trade associations, engineering societies, and government agencies, organized a Technical Committee to perform its work. During July 1981, this Technical Committee was reorganized as an ASME Standards Committee operating under the ANSI accredited organization procedures.

The following MH1Committee standards were issued:

MH1.1.2 Definitions and Terminology Covering Pallets and Related Structures
MH1.2.2M Pallet Sizes
MH1.4.1M Procedures for Testing Pallets
MH1.5M Slip Sheets
MH1.6 Standard Procedures for Determination of Durability of Wooden Pallets and Related Structures
MH1.7M Driven Fasteners for Assembly of Pallets and Related Structures
MH1.8M Wood Pallets
MH1.9 Export Pallets

The MH1Committee published the above eight separate standards consolidated into a single publication, MH1Pallets, Slip Sheets, and Other Bases for Unit Loads. The 1997 Edition contained the consolidation of the revised MH1.1.2, MH1.4M (formerly MH1.4.1M), MH1.6, and MH1.7M standards. All of the documents contained in the previous Edition of the Standard were approved by ANSI as American National Standards on July 16, 1996.

The first addenda to the previous Edition added the remaining four standards to be consolidated into MH1. Part 2, the revised MH1.2.2, was approved by ANSI on August 6, 1998. Part 3, the revised MH1.8, was approved on August 6, 1998. Part 4, the revised MH1.9, was approved on January 30, 1998. Part 8, the revised MH1.5M, received approval on August 6, 1998. In addition, the military-specific Part 9, entitled "Wood Pallets for U.S. Government Use," was developed by the MH1Committee in response to the Government's need to use voluntary standards. This final Part was approved by ANSI on February 4, 1999.

The second addenda to the previous Edition added Part 10 and revisions to Parts 3, 8, and 9. Part 10 was approved by ANSI on January 19, 2000. Revisions to Part 9 were approved by ANSI on June 7, 2000. The 2005 Edition was approved by ANSI on August 28, 2003 and on March 9, 2005, incorporating changes in all parts and the addition of a new Part 6. This Edition incorporates changes in all parts (with the exception of Parts 8 and 10) and the addition of new Parts 11, 12, 13 and 14. This Standard was approved by ANSI on 8 Jan, 2016.

MHI STANDARDS COMMITTEE MH1
Standardization of Pallets, Slip Sheets, and Other Bases for Unit Loads

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

COMMITTEE PERSONNEL

Don Balazs	ORBIS Corporation
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PALLETS, SLIP SHEETS, AND OTHER BASES FOR UNIT LOADS

Part 1
Definitions and Terminology Covering Pallets and Related Structures

1 SCOPE

Part 1 provides definitions and terminology associated with the construction and use of pallets and related structures, such as skids and pallet containers.

2 PURPOSE

The purpose of Part 1 is to provide generally accepted definitions and terminology that serve as the basis for common understanding when describing pallets and related structures and their use.

3 REFERENCED STANDARDS

The following is a list of standards and specifications that were reviewed during the preparation of Part 1, showing the year of approval:

ANSI/MHIA MH1 - 2005, Part1 Definitions and Terminology Covering Pallets and Related Structures

ANSI/MHIA MH1 - 2005, Part3 Wood Pallets

ANSI/MHIA MH1 - 2005, Part 4 Export Pallets

ANSI/MHIA MH1 - 2005, Part 5 Driven Fasteners for Assembly of Pallets and Related Structures

ANSI/MHIA MH1 - 2005, Part 7 Testing Procedures for Pallets and Related Structures

Publisher: Material Handling Industry of America (MHIA), 8720 Red Oak Blvd, Suite 201, Charlotte, NC 28217-3992. www.mhia.org

ASTM D 1185 – 1998a, Standard Test Methods for Pallets and Related Structures Employed in Materials Handling and Shipping

ASTM F 680 – 1980 (1993), Test Methods for Nails

ASTM F 1575 – 1995, Test Method for Determining Bending Yield Moment of Nails

ASTM F 1667 – 2000, Specifications for Driven Fasteners: Nails, Spikes, and Staples

IEEE/ASTM SI-10, Standard for Use of the International System of Units (SI): The Modern Metric System

Publisher: ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA, 19428-2959. www.astm.org

ISO 445 – 1996, Pallets for Materials Handling – Vocabulary