

ANSI MH 28.2: 2012
(a reaffirmation of ANSI MH28.2 – 2003)



Design and Testing of Boltless Metal-Wood Shelving

Abstract:

This standard applies to Boltless Metal-Wood Shelving exclusively used for the storage by hand of small to bulky type material. The shelving framing is composed of boltless connections. Units consist of cold-formed steel members supporting a surface of particleboard, mat-formed wood particle-board, plywood or other wood products.



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**Design and Testing of Boltless
Metal-Wood Shelving**

Storage Equipment Manufacturers Association (SMA)

A Product Section of Material Handling Industry of America (MHIA),
MHIA is a Division of Material Handling Industry

Approved January 17, 2012

American National Standards Institute, Inc.

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FOREWORD. This Standard, approved by ANSI on January 17, 2012, was developed under Material Handling Industry's (MHI) ANSI approved procedures, and represents suggested design practices and operational requirements for Boltless Metal-Wood Shelving. It was developed by the Storage Equipment Manufacturers Association (SMA), and is intended to provide useful information and guidance for owners, users, designers, purchasers and/or specifiers of material handling equipment or systems. It is advisory only and should only be regarded as a simple tool that its intended audience may or may not choose to follow, adopt, modify, or reject. The following information does not constitute a comprehensive safety program, cannot guard against pitfalls in operating, selecting and purchasing such a system, and should not be relied upon as such. Such a program should be developed, and an independent adviser should be consulted in doing so.

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Foreword (This foreword is not part of American National Standard MH28.2-2012)

The Storage Equipment Manufacturers Association (SMA), a Product Section of Material Handling Industry of America, a division of Material Handling Industry, is comprised of a substantial portion of the major companies that design and manufacture boltless metal-wood shelving in the United States. This standard is the result of SMA's recognition of the need to develop a comprehensive safety standard and establish a minimum design and performance criteria to ensure the safe application and utilization of boltless metal-wood shelving, and was formulated under American National Standards Institute (ANSI) procedures.

Suggestions for improvement, and questions regarding interpretation, of this standard will be welcome. They should be sent to: MH28.2 Committee (SMA), Material Handling Industry of America, 8720 Red Oak Blvd., Suite 201, Charlotte, NC, 28217-3992; standards@mhia.org.

TABLE OF CONTENTS

	Page
1 General	1
2 Design Procedures and Dimensional Limitations	2
3 Allowable Stresses and Effective Widths	2
4 Beams	3
5 Connections and Bearing Plates	4
6 Loads	4
7 Special Shelving Design Provisions	6
8 Test Methods	7
9 Wood Storage Surface	13
10 Steel Storage Surfaces	14
11 References	14

Design and Testing of Boltless Metal-Wood Shelving

1 GENERAL

1.1 Scope

This standard applies to Boltless Metal-Wood Shelving exclusively used for the storage by hand of small to bulky type material. The shelving framing is composed of boltless connections. Units consist of cold-formed steel members supporting a surface of particleboard, mat-formed wood particle board, plywood or other wood products. Additionally, surfaces of wire mesh and steel sheet can be used.

1.2 Materials

This standard assumes the use of steel of structural quality as defined in general by the specifications of the American Society for Testing and Materials (referred to hereinafter as "ASTM") that are listed in the American Iron and Steel Institute's *North American Specification for the Design of Cold-Formed Steel Structural Members*, 2007 edition (referred to hereinafter as "the AISI Specification"). Steels not listed in the above specifications are not excluded provided they conform to the chemical and mechanical requirements of either reference, or other published specifications which establish their properties and structural suitability, and provided they are subjected by either the producer or the purchaser to analyses, tests, and other controls in the manner prescribed by either reference as applicable.

This standard also assumes the use of mat-formed wood particleboard, plywood, oriented strand board, or other wood product to be used as the storage surface supported by the steel framing material. Additionally, surfaces made of wire mesh or sheet steel can be used to support loads.

1.3 Applicable Design Specifications

Except as modified or supplemented in this standard, the AISI Specification, applies to the design and testing of framing material of metal-wood shelving.

Either ASD or LRFD can be used for the design of metal-wood shelving. The method of design for the steel structural system selected by the manufacturer must be consistent for the design of all steel components supplied by the manufacturers.

1.4 Definition of Terms

Except for certain terms defined as follows and elsewhere in this standard, words shall have the ordinary dictionary meaning.

1.4.1 Dead Load - The weight of the shelving components, including the wood used as the shelf support surface.

1.4.2 Design Load - The manufacturer's maximum recommended static live load to be applied to the shelving components using safety factors or factored loads recommended by this Specification.