Preparing Activity: NAVFAC Replacing without change
UFGS-10675 (August 2004)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
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STEEL SHELVING

04/06

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USACE / NAVFAC / AFCEC / NASA **UFGS-10 56 13 (April 2006)**

Preparing Activity: NAVFAC **Replacing without change UFGS-10675 (August 2004)**

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SECTION 10 56 13

STEEL SHELVING
04/06

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NOTE: This guide specification covers the requirements for hand loaded steel shelving units.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

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NOTE: Show the following information on the project drawings.

1. Location, length, and type of shelving units.

2. Aisle layout

3. Loading and accessories

4. Mounting and anchorage requirements or details.

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PART 1 GENERAL

1.1 REFERENCES

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NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.
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The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D522/D522M	(2017) Mandrel Bend Test of Attached Organic Coatings
ASTM D2794	(1993; R 2019) Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D3359	(2017) Standard Test Methods for Rating Adhesion by Tape Test

MATERIAL HANDLING INDUSTRY OF AMERICA (MHI)

MHI MH28.1	(1997) Specification: Industrial Steel Grade Shelving

1.2 DEFINITIONS

For the purposes of this specification the shelf category, "medium weight," "heavy weight," will be as follows. Load is given per shelf in kilograms pounds for evenly distributed load. This does not limit the shelf size, only the shelving category.

Minimum Evenly Distributed Load Per Shelf in Kilograms		
Shelf Size	Type Medium Duty	Type Heavy Duty
450 by 900 mm	320	590

Minimum Evenly Distributed Load Per Shelf in Kilograms		
Shelf Size	Type Medium Duty	Type Heavy Duty
450 by 1200 mm	230	410

Minimum Evenly Distributed Load Per Shelf in Pounds		
Shelf Size	Type Medium Duty	Type Heavy Duty
18 by 36 in.	700	1300
18 by 48 in.	500	900

1.3 SUBMITTALS

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NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G". Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force, and NASA projects, or choose the second bracketed item for Army projects.

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Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Shelving Units

SD-03 Product Data

Shelving Units

Accessories

Installation instructions

SD-04 Samples

Finish

SD-06 Test Reports

Shelving Units

Finish

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver materials in original packages, containers or bundles bearing the brand name and identification of the manufacturer. Store inside under cover. Protect surfaces from damage.

PART 2 PRODUCTS

2.1 MANUFACTURED UNITS

MHI MH28.1. Provide shelving units [indicated] [scheduled]. Provide shelving units designed for full dead and live load, designated [medium duty] [heavy duty]. [Provide units with base plates for floor anchorage indicated.] [Provide wall connections for units over 2500 mm 8 feet 3 inches to top shelf.] [Provide floor and wall anchorages for units in Seismic Zone 3 or 4. Provide door and drawer earthquake stops.] [Provide wall connections for drawer units if necessary.]

2.2 ACCESSORIES

a. Drawers, 180 kg 400 pound capacity, and mounting brackets

b. Partitions and dividers

c. Label holder [56 by 20 mm] [75 by 125 mm] [2 1/4 by 3/4 inches] [3 by 5 inches].

2.3 FINISH

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NOTE: Specify special finish only if the conditions of use are particularly harsh. Any finish other than the manufacturer's standard will be very expensive.

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Provide the shelving units in the manufacturer's standard colors [as indicated] [as chosen by the Contracting Officer]. Clean metal by multiple stage phosphatizing and sealing process, for rust resistance and paint adhesion. Provide electrostatically applied enamel finish coats, baked hard for a minimum of 30 minutes at 149 degrees C 300 degrees F. [Provide special finish meeting the flexibility, adhesion, and impact standards below.]

2.4 SOURCE QUALITY CONTROL

a. MHI MH28.1, for tests of shelf capacity, lateral stability and shelf connections.

[b. Finish flexibility, ASTM D522/D522M, Method A, 3 mm 1/8 inch diameter, 180 degree bend, no evidence of fracturing to the naked eye.]

[c. Finish adhesion, ASTM D3359, Method B. There shall be no film removed by tape applied to 11 parallel cuts space 3 mm 1/8 inch apart plus 11 similar cuts at right angles.]

[d. Impact resistant finish, ASTM D2794, no loss of adhesion after direct and reverse impact equal to 1.5 times metal thickness in mm, expressed in N.m inch pounds.]

PART 3 EXECUTION

3.1 EXAMINATION

Before installation, examine shelving units for dents and scratches. Replace damaged shelving.

3.2 INSTALLATION

Install shelving according to manufacturer's installation instructions. [Make wall and floor connections as indicated.]

3.3 PROTECTION

Cover and protect shelving from damage during the completion of construction. Remove prior to acceptance of project.

3.4 [SCHEDULE

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NOTE: Put on contract drawings by preference.

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SHELVING						
Type	Width	Depth	Number of Shelves	Height	Accessories	Room
[_____]	[_____]	[_____]	[_____]	[_____]	[_____]	[_____]

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