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DIVISION 10 - SPECIALTIES

SECTION 10 56 13

STEEL SHELVING

04/06

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-- End of Section Table of Contents --
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).

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.

PART 1 GENERAL
1.1 REFERENCES

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.

**************************************************************************

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)


MATERIAL HANDLING INDUSTRY OF AMERICA (MHI)


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.

<table>
<thead>
<tr>
<th>Shelf Size</th>
<th>Type Medium Duty</th>
<th>Type Heavy Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>450 by 900 mm</td>
<td>320</td>
<td>590</td>
</tr>
<tr>
<td>450 by 1200 mm</td>
<td>230</td>
<td>410</td>
</tr>
</tbody>
</table>
### Minimum Evenly Distributed Load Per Shelf in Pounds

<table>
<thead>
<tr>
<th>Shelf Size</th>
<th>Type</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medium Duty</td>
<td>Heavy Duty</td>
</tr>
<tr>
<td>18 by 36 in.</td>
<td>700</td>
<td>1300</td>
</tr>
<tr>
<td>18 by 48 in.</td>
<td>500</td>
<td>900</td>
</tr>
</tbody>
</table>

### 1.3 SUBMITTALS

**NOTE:** Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project.

The Guide Specification technical editors have designated 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 submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation 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" following a submittal item indicates that the submittal is required for the Sustainability eNotebook to fulfill federally mandated sustainable requirements in accordance with Section 01 33 29 SUSTAINABILITY REPORTING. Locate the "S" submittal under the SD number that best describes the submittal item.

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

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.][for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion
in the Sustainability eNotebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING. 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

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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.
**************************************************************************
<table>
<thead>
<tr>
<th>Type</th>
<th>Width</th>
<th>Depth</th>
<th>Number of Shelves</th>
<th>Height</th>
<th>Accessories</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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