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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
NASA-10160 (June 2004)  
NASA  
Superseding NASA-10160  
(October 2003)  
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DIVISION 10 - SPECIALTIES

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06/04

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SECTION 10160

METAL TOILET COMPARTMENTS  
06/04

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NOTE: Delete, revise, or add to the text in this section to cover project requirements. Notes are for designer information and will not appear in the final project specification.

This section covers ceiling-hung, floor-supported, and overhead-braced toilet partitions.

Partition napkin disposal, toilet-tissue dispenser, grab bars, and other similar toilet-room accessories shall be as specified in Section 10800 TOILET AND BATH ACCESSORIES. Coordinate partition cutouts and reinforcement as required for the specified accessories.

If ceiling-hung toilet partitions are required for the project, coordinate with Section 05500 METAL FABRICATIONS for installation of indicated supporting members.

Drawings must include:

Locations and dimensions of the partitions, doors, pilasters, screens, and door swings

Heights of the bottoms of enclosures and screens above the floor

Method of support to be employed, using details where needed for clarity

Provisions for attaching hardware to partitions

A schedule to identify the finish and color to be used

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PART 1 GENERAL

1.1 REFERENCES

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NOTE: The following references should not be manually edited except to add new references. References not used in the text will automatically

be deleted from this section of the project  
specification.

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The publications listed below form a part of this section to the extent  
referenced:

ALUMINUM ASSOCIATION (AA)

AA 45 (2003) Designation System for Aluminum  
Finishes

ASTM INTERNATIONAL (ASTM)

ASTM A 123/A 123M (2002) Standard Specification for Zinc  
(Hot-Dip Galvanized) Coatings on Iron and  
Steel Products

ASTM A 167 (1999) Standard Specification for  
Stainless and Heat-Resisting  
Chromium-Nickel Steel Plate, Sheet, and  
Strip

ASTM A 336/A 336M (2003a) Standard Specification for Steel  
Forgings, Alloy, for Pressure and  
High-Temperature Parts

ASTM A 385 (2003) Standard Practice for Providing  
High-Quality Zinc Coatings (Hot-Dip)

ASTM A 525 (1993) Standard Specification for General  
Requirements for Steel Sheet, Zinc-Coated  
(Galvanized) by the Hot-Dip Process

ASTM A 525M (1991; Rev A) Standard Specification for  
General Requirements for Steel Sheet,  
Zinc-Coated (Galvanized) by the Hot-Dip  
Process (Metric)

ASTM A 526/A 526M (1990) Standard Specification for Steel  
Sheet, Zinc-Coated (Galvanized) by the  
Hot-Dip Process, Commercial Quality

ASTM B 221/B 221M (2003) Standard Specification for Aluminum  
and Aluminum-Alloy Extruded Bars, Rods,  
Wire, Profiles, and Tubes

ASTM B 36/B 36M (2001) Brass Plate, Sheet, Strip, and  
Rolled Bar

ASTM B 456 (2003) Standard Specification for  
Electrodeposited Coatings of Copper Plus  
Nickel Plus Chromium and Nickel Plus  
Chromium

ASTM B 86 (2003) Standard Specification for  
Zinc-Alloy Die Castings

ASTM D 2092 (1995; R 2001e1) Standard Practice for

Preparation of Zinc-Coated Galvanized  
Steel Surfaces for Paint

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS FF-B-588	(Rev D) Bolt, Toggle; and Expansion Sleeve, Screw
FS FF-S-325	(Int Amd 3) Shield, Expansion; Nail, Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry)
FS QQ-C-320	(Rev B; Am 4) Chromium Plating (Electrodeposited)

1.2 SUBMITTALS

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**NOTE: Review submittal description (SD) definitions  
in Section 01330 SUBMITTAL PROCEDURES and edit the  
following list to reflect only the submittals  
required for the project. Submittals should be kept  
to the minimum required for adequate quality  
control. Include a columnar list of appropriate  
products and tests beneath each submittal  
description.**  
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The following shall be submitted in accordance with Section 01330 SUBMITTAL  
PROCEDURES in sufficient detail to show full compliance with the  
specification:

SD-02 Shop Drawings

Fabrication Drawings shall be submitted in accordance with  
paragraph entitled, "General Information," of this section.

Installation Drawings shall be submitted for metal toilet  
partitions and urinal screens in accordance with the paragraph  
entitled, "Installation," of this section.

SD-03 Product Data

Manufacturer's catalog data shall be submitted for the following  
items:

- Galvanized Steel Sheet
- Sound Deadening Cores
- Partition Panels and Doors
- Anchoring Devices and Fasteners
- Hardware and Fittings
- Brackets
- Door Hardware
- Ceiling-Hung Partitions
- Floor-Supported Partitions
- Overhead-Braced Partitions

SD-04 Samples

Three samples of fabrication of Partition Panels showing a finished edge on two adjacent sides and core construction, each not less than 12-inches 300 millimeter square

Three of each item of Hardware and Fittings and Anchoring Devices and Fasteners

Approved hardware samples may be installed in the work if properly identified.

#### SD-07 Certificates

Certification of product quality shall be provided by the Contractor in accordance with paragraph entitled, "Quality Assurance," of this section.

#### 1.3 DELIVERY, HANDLING, AND STORAGE

Materials shall be protected from weather, soil, and damage during delivery, storage, and construction.

Materials shall be delivered in the original, unopened packages or containers bearing the brand name and the name of the material.

#### 1.4 FIELD MEASUREMENTS

Field measurements shall be taken prior to the preparation of drawing and fabrication to ensure proper fits.

#### 1.5 GENERAL INFORMATION

Fabrication Drawings shall be submitted for metal toilet partitions and urinal screens consisting of fabrication and assembly details to be performed in the factory.

#### 1.6 QUALITY ASSURANCE

Certification that metal toilet partitions will be free of defects in materials, fabrication, finish, and installation and will remain so for a period of not less than [\_\_\_] years after completion.

### PART 2 PRODUCTS

#### 2.1 GALVANIZED STEEL SHEET

Galvanized steel sheet shall be cold-rolled, stretcher-level, commercial quality material conforming to ASTM A 526/A 526M with zinc coating conforming to ASTM A 525, G90 ASTM A 525M, Z275. Surface preparation of material for painting shall conform to ASTM D 2092, Method A.

#### 2.2 SOUND-DEADENING CORES

Sound deadening shall consist of treated kraft paper honeycomb cores with a cell size of not more than 1 inch 25 millimeter. Resin-material content shall weigh not less than 11 percent of the finished core weight. Expanded cores shall be faced on both sides with kraft paper.

### 2.3 PARTITION PANELS AND DOORS

Partition Panels and doors shall be not less than 1 inch 25 millimeter thick with face sheets not less than 0.0396 inch 1.006 millimeter thick.

### 2.4 PARTITION FABRICATION

Partition Panels, doors, screens, and pilasters required for the project shall be fabricated from galvanized-steel face sheets with formed edges. Face sheets shall be pressure-laminated to the sound-deadening core with edges sealed with a continuous locking strip and corners mitered and welded. Welds shall be ground smooth. Concealed reinforcement shall be provided for installation of hardware, fittings, and accessories. Surface of face sheets shall be smooth and free from wave, warp, or buckle.

### 2.5 PREPARATION

Before application of an enamel coating system, galvanized-steel surfaces shall be solvent-cleaned to remove processing compounds, oils, and other contaminants harmful to coating-system adhesion. After cleaning, the surfaces shall be coated with a metal-pretreatment phosphate coating. After pretreatment, exposed galvanized-steel surfaces shall be finished with a baked-enamel coating system as specified.

### 2.6 ENAMEL COATING SYSTEM

Enamel coating system shall consist of a factory-applied baked acrylic enamel coating system. Coating system shall be a durable, washable, stain-resistant, mar-resistant finish.

### 2.7 ANCHORING DEVICES AND FASTENERS

Steel anchoring devices and fasteners shall be hot-dipped galvanized after fabrication in conformance with ASTM A 385 and ASTM A 123/A 123M. Galvanized anchoring devices shall be concealed. Toggle bolts shall conform to FS FF-B-588. Masonry anchors shall conform to FS FF-S-325. Exposed fasteners shall have one-way heads.

### 2.8 HARDWARE AND FITTINGS

#### 2.8.1 Materials

[Cold-rolled sheet steel shall conform to ASTM A 336/A 336M, commercial quality.]

[Zinc-base alloy shall conform to ASTM B 86, Alloy AC41-A.]

[Brass shall conform to ASTM B 36/B 36M, Alloy C26800.]

[Aluminum shall conform to ASTM B 221/B 221M.]

[Corrosion-resistant steel shall conform to ASTM A 167, Type [302] [304].]

#### 2.8.2 Finishes

[Chrome plating shall conform to ASTM B 456.]

[Finish shall conform to FS QQ-C-320, Class I, Type [I] [II].]

[Aluminum shall have a clear anodic coating conforming to AA 45.]

[Corrosion-resistant steel shall have a No. 4 finish.]

[Exposed fasteners shall match the hardware and fittings.]

2.9 BRACKETS

Wall brackets shall be two-ear panel brackets, T-style, 1-inch 25 millimeter stock.

Panel-to-pilaster brackets shall be stirrup style.

2.10 DOOR HARDWARE

Hinges shall be self-lubricating with the indicated swing.

Hinges shall [be the surface-mounted type] [be the cutout-insert type] [have the following type of return movement:

[Gravity return movement]

[Spring-action cam return movement]

[Torsion-rod return movement]]

Hinge shall be adjustable to hold in-swinging doors open at any angle up to 90 degrees and outswinging doors to 10 degrees.

Latch and pull shall be a combination rubber-faced door strike and keeper equipped with emergency access.

Coat hooks shall be combination units with hooks and rubber tipped pins.

2.11 CEILING-HUNG PARTITIONS

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**NOTE: Delete the paragraph heading and the following paragraph if ceiling-mounted partitions are not required.**  
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Pilasters shall be not less than 1-1/4 inches 32 millimeter thick with face sheets not less than 0.0635 inch 1.613 millimeter thick. Anchoring device at the top of the pilaster shall be welded to the reinforced face sheets and shall have not less than two 3/8-inch 10 millimeter round threaded rods, lock washers, and leveling-adjustment nuts. Anchoring device shall be designed to transmit the strain and loading on the pilaster directly to the structural support above without putting strain or loading on the finished ceiling. Trim piece at the top of the pilaster shall be 3 inches 75 millimeter high and fabricated from not less than 0.030-inch 0.76 millimeter thick stainless steel.

2.12 FLOOR-SUPPORTED PARTITIONS

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**NOTE: Delete the paragraph heading and the following paragraph if floor-supported partitions are not required.**  
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Pilasters shall be not less than 1-1/4 inches 32 millimeter thick with face sheets not less than 0.0635 inch 1.61 millimeter thick. Anchoring device at the bottom of the pilaster shall consist of a steel bar not less than 1/2- by 7/8-inch 13 by 22 millimeter welded to the reinforced face sheets and shall have not less than two 3/8-inch 9 millimeter round anchorage devices for securing to the floor slab. Anchorage devices shall be complete with threaded rods, expansion shields, lock washers, and leveling-adjustment nuts. Trim piece at the floor shall be 3 inches 75 millimeter high and fabricated from not less than 0.030-inch 0.75 millimeter thick corrosion-resistant steel.

2.13 OVERHEAD-BRACED PARTITIONS

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**NOTE: Delete the paragraph heading and the following paragraph if overhead-braced partitions are not required.**

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Pilasters shall be not less than 1-1/4 inches 32 millimeter thick with face sheets not less than 0.0396 inch 1.0 millimeter thick. Anchoring device at the bottom of the pilaster shall consist of a channel-shaped floor stirrup fabricated from not less than 0.0635-inch 1.613 millimeter thick material and a leveling bolt. Stirrup shall be secured to the pilaster with not less than a 3/16-inch 4 millimeter bolt and nut after the pilaster is leveled. Stirrup shall be secured to the floor with not less than two lead expansion shields and sheetmetal screws. Overhead brace shall be fabricated from a continuous extruded aluminum tube not less than 1 inch 25 millimeter wide by 1-1/2 inches 38 millimeter high, 0.125-inch 3 millimeter wall thickness. Finish shall be AA-C22A31 in accordance with AA 45. Brace shall be set and secured into the top of each pilaster. Trim piece at the floor shall be 3 inches 75 millimeter high and fabricated from not less than 0.030-inch 0.75 millimeter thick corrosion-resistant steel.

2.14 SCREENS

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**NOTE: Delete the paragraph heading and the following paragraphs when screens are not required.**

**Select the type of screen required.**

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2.14.1 Entrance Screen

Screens shall be fabricated from the same types of panels, pilasters, and fittings as the toilet partitions.

2.14.2 Urinal Screens

Screens shall be fabricated from the same types of panels and pilasters as the toilet partitions. Fittings and fasteners shall be corrosion-resistant steel.

Screens shall be [wall hung with mounting brackets] [wall hung with flanges] [ceiling hung] [floor supported] [floor-to-ceiling post supported].

PART 3 EXECUTION

3.1 INSTALLATION

Partitions shall be installed rigid, straight, plumb, and level, with the panels centered between the fixtures. Contractor shall provide a panel clearance of not more than 1/2 inch 13 millimeter and shall secure the panels to walls and pilasters with not less than two wall brackets attached near the top and bottom of the panel. Wall brackets shall be located so that holes for wall bolts occur in masonry or tile joints. Panels shall be secured to pilasters with brackets matching the wall brackets.

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**NOTE: Select anchorage devices for types of wall construction as required.**  
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Panels shall be secured to hollow plastered walls with toggle bolts using not less than 1/4-20 M6x1 screws of the length required for the wall thickness. Toggle bolts shall have a load-carrying strength of not less than 600 pounds 2670 newton per anchor.

Panels shall be secured to ceramic tile on hollow plastered walls or hollow concrete-masonry walls with toggle bolts using not less than 1/4-20 M6x1 screws of the length required for the wall thickness. Toggle bolts shall have a load-carrying strength of not less than 600 pounds 2670 newton per anchor.

Panels shall be secured to solid masonry or concrete with lead or brass expansion shields designed for use with not less than 1/4-20 M6x1 screws, with a shield length of not less than 1-1/2 inches 40 millimeter. Expansion shields shall have a load-carrying strength of not less than 600 pounds 2670 newton per anchor.

Installation Drawings shall be submitted for metal toilet partitions and urinal screens. Drawings shall indicate the type of partition, location, mounting height, cutouts, and reinforcement required for toilet-room accessories.

3.2 CEILING-HUNG PARTITIONS

\*\*\*\*\*  
**NOTE: Delete the paragraph heading and the following paragraph if ceiling-mounted partitions are not required.**  
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Pilasters shall be secured to the structural support above with the anchorage device specified. Leveling device shall be readily accessible for leveling, plumbing, and tightening the installation. Bottoms of doors shall be level with bottoms of pilasters when doors are in a closed position.

3.3 FLOOR-SUPPORTED PARTITIONS

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**NOTE: Delete the paragraph heading and the following paragraph if floor-supported partitions are not required.**  
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Pilasters shall be secured to the floor with the anchorage device specified. Leveling device shall be readily accessible for leveling, plumbing, and tightening the installation. Tops of doors shall be level with tops of pilasters when doors are in a closed position. Expansion shields shall have a minimum 2-inch 50 millimeter penetration into the concrete slab.

3.4 OVERHEAD-BRACED PARTITIONS

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**NOTE: Delete the paragraph heading and the following paragraph if overhead-braced partitions are not required.**

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Pilasters shall be secured to the floor with the anchorage device specified. Leveling device shall be readily accessible for leveling, plumbing, and tightening the installation. Overhead brace shall be secured to the pilaster face with not less than two fasteners per face. Expansion shields shall have a minimum 2-inch 50 millimeter penetration into the concrete slab.

Tops of doors shall be parallel with the overhead brace when doors are in a closed position.

3.5 FINAL ADJUSTMENTS

After completion of the installation, the Contractor shall make final adjustments to the pilaster-leveling devices, door hardware, and other working parts of the partition assembly.

3.6 CLEANING

Surfaces of the work and adjacent surfaces soiled as a result of the work shall be cleaned in an approved manner. Equipment, surplus materials, and rubbish from the work shall be removed from the site.

-- End of Section --