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USACE / NAVFAC / AFCEA / NASA                      UFGS-10 21 13.16 40 (June 2006)  
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Preparing Activity:    NASA                      Superseding  
   UFGS-10 21 13.16 40 (April 2006)  
   NASA-10165S (December 2005)

## UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 18 July 2006

Revised throughout - changes indicated by CHG tags

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### SECTION 10 21 13.16 40

#### PLASTIC-LAMINATE-CLAD TOILET COMPARTMENTS 06/06

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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 laminated-plastic toilet partitions including partitions used as room entrances and urinal screens. It covers requirements for fabrication and installation of wall-mounted, overhead-braced, ceiling-hung, and floor-supported units.

Associated work found in other sections includes:

Shower and dressing compartments, toilet and bathroom accessories, structural supports, and floor finishes

Drawings must indicate:

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, with details where needed for clarity

Provisions for attaching hardware to partitions

A schedule to identify the finish and color to be used

Comments and suggestions on this guide specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization

designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

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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 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.

#### ALUMINUM ASSOCIATION (AA)

AA DAF-45 (2003) Designation System for Aluminum Finishes

#### AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A208.1 (1999) Standard for Mat-Formed Wood Particle Board

#### 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 (2004) Standard Specification for Stainless and Heat-Resisting

|                   |  |
|-------------------|--|
|                   | Chromium-Nickel Steel Plate, Sheet, and Strip  |
| ASTM A 336/A 336M | (2005) Standard Specification for Alloy Steel Forgings, for Pressure and High-Temperature Parts                          |
| ASTM A 385        | (2005) Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip)  |
| ASTM B 221        | (2005) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes             |
| ASTM B 36/B 36M   | (2001) Standard Specification for 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 630        | (1988; R 2001) Standard Practice for Preparation of Chromium for Electroplating with Chromium                            |
| ASTM B 86         | (2004e2) Standard Specification for Zinc and Zinc-Aluminum Alloy Foundry and Die Castings                                |
| ASTM D 4690       | (1999; R 2005) Standard Specification for Urea Formaldehyde Resin Adhesives  |

#### HARDWOOD PLYWOOD AND VENEER ASSOCIATION (HPVA)

|           |   |
|-----------|---|
| HPVA HP-1 | (2000) Standard for Hardwood and Decorative Plywood |
|-----------|---|

#### NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

|           |  |
|-----------|--|
| NEMA LD 3 | (2005) Standard for High-Pressure Decorative Laminates |
|-----------|--|

#### NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

|           |  |
|-----------|--|
| NIST PS 1 | (1996) Construction and Industrial Plywood |
|-----------|--|

#### 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) |

## 1.2 SUBMITTALS

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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. Submittals should be kept to the minimum required for adequate quality control.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" 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.

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" 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.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

#### SD-02 Shop Drawings

Fabrication drawings shall be submitted for toilet [Partitions](#) and [Urinal Screens](#) consisting of fabrication and assembly details to be performed in the factory.

[Installation Drawings](#) shall be submitted for 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:

[Plastic Laminate](#)  
[Core](#)  
[Adhesive](#)  
[Pilasters, Supports, and Hangers](#)

Anchoring Devices and Fasteners  
Hardware and Fittings  
Brackets  
Door Hardware

#### SD-04 Samples

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

Three 300 millimeter 12-inch square samples of Panels showing a finished edge on two adjacent sides and the core construction.

Three sets of the full color range of the Plastic Laminate.

When requested, full size models of Partitions and Screens, including pilasters, hardware and fasteners, anchoring and leveling devices, and accessories.

Approved Hardware and Fittings samples may be installed in the work if properly identified.

#### SD-07 Certificates

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

### 1.3 DELIVERY, HANDLING, AND STORAGE

Items shall be delivered in the manufacturer's original unopened protective packaging. Materials shall be stored in a manner to prevent soiling, physical damage, or wetting. Materials shall be handled so as to prevent damage to finished surfaces.

### 1.4 FIELD MEASUREMENTS

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

### 1.5 QUALITY ASSURANCE

Certification that manufacturer is engaged in the manufacture of laminated plastic toilet partitions.

Certification that 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 PLASTIC LAMINATE

Plastic laminate shall conform to NEMA LD 3 and shall have a minimum thickness 1.57 millimeter 0.062 inch.

Plastic laminate shall be bonded to the core in one-piece sheets under continuous heat and pressure. No splices or joints shall exist in faces. Edges shall be sealed against moisture. Reinforcement for installation of

hardware and fittings shall be concealed.

## 2.2 CORE

[Core shall be of particle board conforming to ANSI A208.1, Type 1.]

[Core shall be hardwood-faced plywood, birch, conforming to HPVA HP-1, Type 2, sound grade.]

\*\*\*\*\*  
NOTE: Use the following core material for urinal  
screens.  
\*\*\*\*\*

Core shall be softwood plywood, Douglas fir, conforming to NIST PS 1,  
Exterior, Grade A-B veneer.

## 2.3 USE OF RECOVERED MATERIALS

\*\*\*\*\*  
NOTE: Plastic or Steel shower and restroom  
dividers/partitions are one of the materials listed  
in the EPA's Comprehensive Procurement Guidelines  
(CPG) (<http://www.epa.gov/cpg/>). If the  
Architect/Engineer determines that use of certain  
materials meeting the CPG content standards and  
guidelines would result in inadequate competition,  
do not meet quality/ performance specifications, are  
available at an unreasonable price or are not  
available within a reasonable time frame, the  
Architect/Engineer may submit written justification  
and supporting documentation for not procuring  
designated items containing recovered material.  
Written justification may be submitted on a Request  
for Waiver Form to the NASA Environmental Program  
Manager for approval. The Request for Waiver Form  
is located in the NASA Procedures and Guidelines  
(NPG 8830.1) (<http://nodis3.gsfc.nasa.gov>).  
\*\*\*\*\*

[Steel] [Plastic] partitions shall have a recovered materials content  
[20-30 percent] [20-100 percent] in accordance with Environmental  
Protection Agency (EPA) recommendations.

## 2.4 ADHESIVE

Adhesive shall be urea resin conforming to ASTM D 4690.

## 2.5 PILASTERS, SUPPORTS, AND HANGERS

Pilasters, supports, and hangers shall be equipped with leveling devices,  
anchor studs, and locking nuts.

\*\*\*\*\*  
NOTE: Delete the following sentence for wall  
supported partitions if it is not required.  
\*\*\*\*\*

Pilaster shoes shall be one-piece, corrosion-resistant steel plinths hemmed



top and bottom, formed to fit pilaster, and equipped with concealed clips.

## 2.6 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.

## 2.7 HARDWARE AND FITTINGS

### 2.7.1 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](#) [ASTM B 221](#)]

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

### 2.7.2 Finishes

\*\*\*\*\*  
**NOTE: Delete inapplicable paragraphs.**  
\*\*\*\*\*

Chrome plating shall conform to [ASTM B 456](#).

Finish shall conform to [ASTM B 630](#), Class I, Type I or II.

Aluminum shall have a clear anodic coating conforming to [AA DAF-45](#).

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

Exposed fasteners shall match hardware and fittings.

## 2.8 BRACKETS

Wall brackets shall be two-ear panel brackets, T-style, [25 millimeter 1-inch](#) stock.

Panel to pilaster brackets shall be stirrup style.

## 2.9 DOOR HARDWARE

Hinges shall be self-lubricating with the indicated swing.

Hinges shall be the [surface-mounted] [cutout-insert] type.

Hinges shall have the following type of return movement:

[Gravity] [Spring-action cam] [Torsion-rod] return movement

Hinges shall be adjustable to hold inswinging doors open at any angle up to

90 degrees and outswinging doors to 180 degrees.

Latch and pull shall be combination rubber-faced door strikes and keepers equipped with emergency access.

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

## 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 15 millimeter 1/2 inch and shall secure the panels to walls and pilasters with not less than two brackets attached near the top and bottom of the panels. Wall brackets shall be located so that holes for wall bolts will occur in masonry or tile joints. Panels shall be secured to pilasters with brackets matching the wall brackets.

\*\*\*\*\*  
**NOTE: Select anchorage devices for types of wall construction as required.**  
\*\*\*\*\*

Panels shall be secured to hollow plastered walls with toggle bolts using not less than M6 (1/4-20) 1/4-20 screws of the length required for the wall thickness. Toggle bolts shall have a load-carrying strength not less than 2700 newton 600 pounds 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 M6 (1/4-20) 1/4-20 screws of the length required for the wall thickness. Toggle bolts shall have a load-carrying strength not less than 2700 newton 600 pounds per anchor.

Panels shall be secured to solid masonry or concrete with lead or brass expansion shields designed for use with not less than M6 (1/4-20) 1/4-20 screws, with a shield length of not less than 40 millimeter. 1-1/2 inches. Expansion shields shall have a load-carrying strength not less than 2700 newton 600 pounds per anchor.

Installation Drawings shall be submitted for 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-hung partitions are not required. Coordinate the installation with the respective section for structural supports.**  
\*\*\*\*\*

Pilasters shall be secured to supporting structural framing using pilaster hangers. Pilaster hangers shall not transmit the load to finished ceiling. Installation shall be plumbed, tightened, and leveled. Pilaster shoes shall be secured in position. Bottoms of doors shall be set level with bottoms of pilasters when they are in a closed position.

### 3.3 OVERHEAD-BRACED PARTITIONS

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

Pilasters shall be attached to the supporting floor with pilaster supports. Expansion shields shall have a minimum 50 millimeter 2-inch penetration into the concrete slab. Installation shall be plumbed, tightened, and leveled. Pilaster shoes shall be secured in place. Overhead brace shall be secured to pilaster face with not less than two fasteners per face. Tops of doors shall be set parallel with overhead braces when in a closed position.

### 3.4 FLOOR-SUPPORTED PARTITIONS

\*\*\*\*\*  
NOTE: Delete the paragraph heading and the  
following paragraph if floor-supported partitions  
are not required.  
\*\*\*\*\*

Pilasters shall be secured to the supporting floor with pilaster supports. Expansion shields shall have a minimum 50 millimeter 2-inch penetration into the concrete slab. Installation shall be plumbed, leveled, and tightened. Pilaster shoes shall be secured in position. Tops of doors shall be set level with tops of pilasters when in a closed position.

### 3.5 WALL-MOUNTED PARTITIONS

\*\*\*\*\*  
NOTE: Delete the paragraph heading and the  
following paragraph if wall-mounted partitions are  
not required. Coordinate the installation with the  
respective sections for structural supports.  
\*\*\*\*\*

Partitions shall be attached to walls with anchoring devices and wall brackets. Units shall be plumbed, leveled, and tightened. Tops of doors shall be set level with tops of pilasters when in a closed position.

### 3.6 SCREENS

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

Select the type of screen required.

\*\*\*\*\*

#### 3.6.1 Entrance Screens

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

### 3.6.2 Urinal Screens

Screens shall be fabricated with 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.]

[Screens shall be wall hung with flanges.]

[Screens shall be ceiling hung.]

[Screens shall be floor supported.]

[Screens shall be floor-to-ceiling post supported.]

## 3.7 FINAL ADJUSTMENTS AND INSPECTION

### 3.7.1 Adjustment

\*\*\*\*\*  
**NOTE: Delete inapplicable paragraphs.**  
\*\*\*\*\*

Hardware shall be adjusted and lubricated for proper operation after installation. Hinges for inward-swing doors shall be set to hold doors open approximately 30 degrees from the closed position when unlatched.

Hinges for outward-swing doors shall be set to hold doors open approximately 10 degrees from the closed position when unlatched.

Final adjustments shall be made to leveling devices and hardware.

### 3.7.2 Inspection

Partitions and doors shall be installed in the proper location and in correct alignment. Completed installation shall be rigid and substantially connected.

Hardware fittings and component parts shall be installed in accordance with approved drawings.

Partitions, pilasters, and doors shall be free of delaminations.

Door hinges and latches shall operate smoothly. Unlatched doors shall stop in the required position.

## 3.8 ACCEPTANCE PROVISIONS

### 3.8.1 Repairing

Damaged and unacceptable portions of completed work shall be removed and replaced with new work.

### 3.8.2 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 --