
USACE / NAVFAC / AFCEA / NASA UFGS-10 21 13 (January 2007)

Preparing Activity: USACE Superseding
UFGS-10 21 13 (July 2006)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 19 March 2007

Latest change indicated by CHG tags

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SECTION 10 21 13

TOILET COMPARTMENTS 01/07

NOTE: This guide specification covers the requirements for ceiling-hung, floor anchored, and overhead-braced toilet partitions.

Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

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

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).

This guide specification includes tailoring options for NAVY. Selection or deselection of a tailoring option will include or exclude that option in the section, but editing the resulting section to fit the project is still required.

PART 1 GENERAL

NOTE: Army buildings not excluded by TI 800-01 Design Criteria will be accessible in accordance with 36 CFR 1191, Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities.

Partition napkin disposal, toilet-tissue dispenser, grab bars, and other similar toilet-room accessories are specified in a separate section. Coordinate partition cutouts and reinforcement as required for the specified accessories.

If ceiling-hung toilet partitions are required for the project, coordinate with metal fabrications and shop drawings 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

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 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.

ALUMINUM ASSOCIATION (AA)

AA DAF-45

(2003) Designation System for Aluminum Finishes

ASTM INTERNATIONAL (ASTM)

ASTM A 123/A 123M	(2002) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 167	(1999; R 2004) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A 336/A 336M	(2006a) Alloy Steel Forgings for Pressure and High-Temperature Parts
ASTM A 385	(2005) Providing High-Quality Zinc Coatings (Hot-Dip)
ASTM A 653/A 653M	(2006a) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM B 221	(2006) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B 221M	(2006) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM B 36/B 36M	(2001) Brass Plate, Sheet, Strip, and Rolled Bar
ASTM B 456	(2003) Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium
ASTM B 86	(2006) Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings
ASTM D 1972	(1997; R 2005) Standard Practice for Generic Marking of Plastic Products
ASTM D 2092	(1995; R 2001e1) Preparation of Zinc-Coated (Galvanized) Steel Surfaces for Painting
ASTM E 2129	(2005) Standard Practice for Data Collection for Sustainability Assessment of Building Products

INTERNATIONAL CODE COUNCIL (ICC)

ICC A117.1	(2003) Accessible and Usable Buildings and Facilities
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SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)

SAE AMS-QQ-C-320	(2000) Chromium Plating (Electrodeposited)-FSC MFFP
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U.S. GENERAL SERVICES ADMINISTRATION (GSA)

CID A-A-60003

(Basic) Partitions, Toilet, Complete

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED

(2002; R 2005) Leadership in Energy and
Environmental Design(tm) Green Building
Rating System for New Construction
(LEED-NC)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

36 CFR 1191

Americans with Disabilities Act (ADA)
Accessibility Guidelines for Buildings and
Facilities

1.2 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. 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.

Government approval is required for submittals with a "G" designation;
submittals not having a "G" designation are for [Contractor Quality Control
approval.] [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

Installation Drawings[; G][; G, [____]]
Fabrication Drawings

Drawings showing plans, elevations, details of construction, hardware, reinforcing, fittings, mountings, and anchorings for metal partitions and urinal screens. Installation drawings as specified.

SD-03 Product Data

Toilet Partition System[; G][; G, [____]]
Cleaning and Maintenance Instructions
Colors And Finishes
Galvanized Steel Sheet
Sound Deadening Cores
Partition Panels and Doors
Anchoring Devices and Fasteners
Hardware and Fittings
Brackets
Door Hardware
Ceiling-Hung Partitions
Floor-Anchored Partitions
Overhead-Braced Partitions

Manufacturer's technical data and catalog cuts including installation and cleaning instructions.

[Local/Regional Materials; (LEED)

Documentation indicating distance between manufacturing facility and the project site. Indicate distance of raw material origin from the project site. Indicate relative dollar value of local/regional materials to total dollar value of products included in project.]

[Environmental Data]

Toilet Enclosures; (LEED)
Room Entrance Screens; (LEED)
Urinal Screens; (LEED)

Documentation indicating percentage of post-industrial and post-consumer recycled content per unit of product. Indicate relative dollar value of recycled content products to total dollar value of products included in project.

SD-04 Samples

Colors and Finishes[; G][; G, [____]]

Manufacturer's standard color charts and color samples.

Partition Panels

Three samples showing a finished edge on two adjacent sides and core construction, each not less than 304.8 mm 12-inch square

Hardware and Fittings Anchoring Devices and Fasteners

Three samples of each item. Approved hardware samples may be installed in the work if properly identified.

SD-07 Certificates

Certification

Documentation of product quality, as specified.

SD-10 Operation and Maintenance Data

Plastic Identification

When not labeled, identify types in Operation and Maintenance Manual.

Waste Management

SD-11 Closeout Submittals

[Local/Regional Materials; (LEED)

LEED documentation relative to local/regional materials credit in accordance with LEED Reference Guide. Include in LEED Documentation Notebook.]

Toilet Enclosures; (LEED)

Room Entrance Screens; (LEED)

Urinal Screens; (LEED)

LEED documentation relative to recycled content credit in accordance with LEED Reference Guide. Include in LEED Documentation Notebook.

1.3 SYSTEM DESCRIPTION

Provide a complete and usable toilet partition system, including toilet enclosures, room entrance screens, urinal screens, system of panels, hardware, and support components. Comply with EPA requirements in accordance with Section 01 62 35 RECYCLED / RECOVERED MATERIALS and Affirmative Procurement guidelines. Furnish the partition system from a single manufacturer, with a standard product as shown in the most recent catalog data. Submit Fabrication Drawings for metal toilet partitions and urinal screens consisting of fabrication and assembly details to be performed in the factory. Submit manufacturer's Cleaning and Maintenance Instructions with Fabrication Drawings for review.

1.4 REGULATORY REQUIREMENTS

Conform to ICC A117.1 code for access for the handicapped operation of toilet compartment door and hardware.

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver materials in the manufacturer's original unopened packages with the brand, item identification, and project reference clearly marked. Store Components in a dry location that is adequately ventilated; free from dust, water, other contaminants, and damage during delivery, storage, and construction.

1.6 SUSTAINABLE DESIGN REQUIREMENTS

1.6.1 Local/Regional Materials

NOTE: Using local materials can help minimize transportation impacts, including fossil fuel consumption, air pollution, and labor. Using materials harvested and manufactured within an 800 km (500 mile) radius from the project site contributes to the following LEED credit: MR5. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION. First option will not be used for USACE projects. Army projects will include second option only if pursuing this LEED credit.

[Use materials or products extracted, harvested, or recovered, as well as manufactured, within a [800] [_____] km [500] [_____] mile radius from the project site, if available from a minimum of three sources.] [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total local material requirements. Toilet partition materials may be locally available.]

1.6.2 Environmental Data

NOTE: ASTM E 2129 provides for detailed documentation of the sustainability aspects of products used in the project. This level of detail may be useful to the Contractor, Government, building occupants, or the public in assessing the sustainability of these products.

[Submit Table 1 of ASTM E 2129 for the following products: [____].]

1.6.3 Plastic Identification

NOTE: The marking system indicated below is intended to provide assistance in identification of products for making subsequent decisions as to handling, recycling, or disposal.

Verify that plastic products to be incorporated into the project are labeled in accordance with ASTM D 1972. Where products are not labeled, provide product data indicating polymeric information in the Operation and Maintenance Manual.

- a. Type 1: Polyethylene Terephthalate (PET, PETE).
- b. Type 2: High Density Polyethylene (HDPE).

- c. Type 3: Vinyl (Polyvinyl Chloride or PVC).
- d. Type 4: Low Density Polyethylene (LDPE).
- e. Type 5: Polypropylene (PP).
- f. Type 6: Polystyrene (PS).
- g. Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.

1.7 WARRANTY

Provide [Certification](#) or warranties 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.

1.8 FIELD MEASUREMENTS

Take field measurements prior to the preparation of drawing and fabrication to ensure proper fits.

PART 2 PRODUCTS

NOTE: Painted metal (Finish 1) toilet enclosures, urinal screens, and room entrance screens are suitable for use in installations where the partitions are subjected to normal usage and exposure conditions. Solid plastic partitions (solid phenolic, Finish 4, and solid polyethylene, Finish 5) should be used unless not economically feasible. Composite materials are generally not recyclable at the end of their useful life. Any plastic or metal materials used must contain recycled materials as indicated. Laminated plastic (Finish 3) toilet partitions will not be used where severe water conditions will be encountered, such as where cleaning is to be performed by spraying water.

Where toilet partitions are indicated for hard usage or severe exposure areas, finishes other than painted metal (Finish 1) or laminated plastic (Finish 3) should be specified when their high initial cost can be justified through life cycle cost. The least expensive painted metal finish is generally the least durable of the finishes listed in CID A-A-60003. Laminated plastic (Finish 3) costs more than the painted metal and less than stainless steel (Finish 2), solid phenolic (Finish 4), or solid polyethylene (Finish 5). Laminated plastic (Finish 3) finishes are hard and smooth; resistant to wear, scratches, periodic moisture, impact, acids and alkalies, and cigarette burns.

Next to stainless steel (Finish 2), the solid plastics (phenolic and polyethylene) are the most durable finishes available. When finishes other than painted metal (Finish 1) are being considered, laminated plastic (Finish 3) should be the next logical choice, followed by solid plastics and stainless steel (Finish 2), and solid phenolic

(Finish 4). Polyethylene (Finish 5), stainless steel (Finish 2), and solid phenolic (Finish 4) are highly resistant to humidity, steam, detergents, cleaning chemicals and corrosion. Interior fire and smoke finish classification must be addressed when materials other than metal partitions are being considered. Edit the following paragraphs for styles and finishes.

Generally, floor-supported enclosures, Style A, will be used; and overhead braced enclosures, Style C, and overhead braced-alcove, Style F, will be used when pilasters cannot be anchored into minimum 76 mm (3 inches) thick structural concrete. Ceiling hung enclosures, Style B, will be used only when the additional cost is justified for reasons of sanitation or appearance. Ceiling hung enclosures, Style B, are not recommended by manufacturers when ceiling height is greater than 2590 mm (8 feet 6 inches). Urinal screens, when deemed necessary, may be any of the 6 styles available, but the floor to ceiling hung screen, Style D, is the most justifiable for reasons of cost and sanitation. Type II, Style D, room entrance screens are generally the most durable style due to the floor to ceiling post support design. Edit as needed to meet project requirements.

If ceiling hung enclosures are to be used, details showing the structural steel channel support system should be shown on the drawings. This section should be coordinated with Section 10 28 13 TOILET ACCESSORIES and the drawings regarding toilet enclosures which will have partition-mounted accessories attached to the panels.

Shower and restroom partitions are EPA designated products for recycled content. See Section 01 62 35 RECYCLED/RECOVERED MATERIALS and include minimum recycled content unless designer determines that justification for non-use exists. EPA recycled content requirements must be addressed in all projects regardless of optional LEED/other recycled content goals. Designer must verify suitability, availability and adequate competition (including verification of bracketed percentages included in this guide specification) before specifying products meeting EPA minimum recycled content.

Use of materials with recycled content, calculated on the basis of post-industrial and post-consumer percentage content, contributes to the following LEED credit: MR4. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION. Designer must verify suitability, availability and adequate competition (including verification of bracketed percentages included in this guide specification) before specifying product recycled content requirements. Use second option if Contractor is choosing recycled

content products in accordance with Section 01 33 29
LEED(tm) DOCUMENTATION. Army projects will specify
recycled content exceeding EPA requirements only if
pursuing this LEED credit.

Screens and enclosures that are thicker than
standard panels last longer, especially in high-use
or high-abuse areas.

2.1 MATERIALS

2.1.1 Galvanized Steel Sheet

Provide galvanized steel sheet cold-rolled, stretcher-level, commercial
quality material, conforming to ASTM A 653/A 653M. Conform surface
preparation of material for painting to ASTM D 2092, Method A.

2.1.2 Sound-Deadening Cores

Provide sound deadening consisting of treated kraft paper honeycomb cores
with a cell size of not more than 25.4 mm 1 inch. Resin-material content
must weigh not less than 11 percent of the finished core weight. Expanded
cores must be faced on both sides with kraft paper.

2.1.3 Anchoring Devices and Fasteners

Provide steel anchoring devices and fasteners hot-dipped galvanized after
fabrication, in conformance with ASTM A 385 and ASTM A 123/A 123M. Conceal
all galvanized anchoring devices.

2.1.4 Brackets

Wall brackets must be two-ear panel brackets, T-style, 25.4 mm 1-inch
stock. Provide stirrup style panel-to-pilaster brackets.

2.1.5 Hardware and Fittings

2.1.5.1 General Requirements

Hardware for the toilet partition system must conform to CID A-A-60003 for
the specified type and style of partitions. Provide hardware finish highly
resistant to alkalis, urine, and other common toilet room acids. Comply
latching devices and hinges for handicap compartments with 36 CFR 1191;
devices and hinges must be [chrome-plated steel] [or] [stainless steel]
door latches that operate without either tight grasping or twisting of the
wrist of the operator.

- a. [Conform cold-rolled sheet steel to ASTM A 336/A 336M, commercial
quality.]
- b. [Zinc-base alloy must conform to ASTM B 86, Alloy AC41-A.]
- c. [Brass must conform to ASTM B 36/B 36M, Alloy C26800.]
- d. [Aluminum must conform to ASTM B 221M ASTM B 221.]
- e. [Corrosion-resistant steel must conform to ASTM A 167, Type [302]
[304].]

2.1.5.2 Finishes

- a. [Chrome plating must conform to ASTM B 456.]
- b. [Finish must conform to SAE AMS-QQ-C-320, Class I, Type [I] [II].]
- c. [Aluminum must have a clear anodic coating conforming to AA DAF-45.]
- d. [Corrosion-resistant steel must have a No. 4 finish.]
- e. [Exposed fasteners must match the hardware and fittings.]

2.1.6 Door Hardware

2.1.6.1 Hinges

Hinges must be self-lubricating with the indicated swing. Hinges must [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 must be adjustable to hold in-swinging doors open at any angle up to 90 degrees and outswinging doors to 10 degrees.

2.1.6.2 Latch and Pull

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

2.1.6.3 Coat Hooks

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

2.2 PARTITION PANELS AND DOORS

Partition Panels and doors must be not less than 25.4 mm 1 inch thick with face sheets not less than 1.006 mm 0.0396 inch thick.

2.2.1 Toilet Enclosures

Conform toilet enclosures to CID A-A-60003, Type I, Style [A, floor supported] [B, ceiling hung] [C, overhead braced] [F, overhead braced-alcove]. Furnish width, length, and height of toilet enclosures as shown. [Provide a width of 25 mm 1 inch.] Finish surface of panels must be [painted metal, Finish 1] [laminated plastic, Finish 3] [solid phenolic, Finish 4] [solid polyethylene, Finish 5] [____]; water resistant; graffiti resistant; non-absorbent; [with plastic face sheets permanently fused to plastic core; 6 mm 1/4 inch radius beveled edges]. [Enclosures shall contain a minimum of [[20] [100] [____] percent post-consumer recycled plastic] [[25] [30] [100] [____] percent recycled steel, with a minimum of [16] [67] [____] percent post-consumer recycled steel]] [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total recycled content requirements. This item may contain post-consumer or post-industrial

recycled content]. Panels indicated to receive toilet paper holders or grab bars must be reinforced for mounting of the items required. Provide grab bars to withstand a bending stress, shear stress, shear force, and a tensile force induced by 1112 N 250 lbf. Grab bars must not rotate within their fittings.

2.2.2 Room Entrance Screens

NOTE: Delete the following paragraphs when screens are not required.

Length and height of room entrance screens will be shown on the drawings, using standard size panels and pilasters to the maximum extent practicable.

Conform room entrance screens to CID A-A-60003, Type II, Style [A, floor anchored] [B, ceiling hung braced] [C, overhead braced] [D, wall hung] [_____]. Finish surface of screens must be [painted metal, Finish 1] [laminated plastic, Finish 3] [solid phenolic, Finish 4] [solid polyethylene, Finish 5] [_____]; water resistant; graffiti resistant; non-absorbent; [with plastic face sheets permanently fused to plastic core; 6 mm 1/4 inch radius beveled edges]. [Screens shall contain a minimum of [[20] [100] percent post-consumer recycled plastic] [[25] [30] [100] percent recycled steel, with a minimum of [16] [67] percent post-consumer recycled steel]]. [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total recycled content requirements. This item may contain post-consumer or post-industrial recycled content.]. Furnish length and height of screens as shown. [Provide thickness of 25 mm 1 inch.] Fabricate screens from the same types of panels, pilasters, and fittings as the toilet partitions.

2.2.3 Urinal Screens

NOTE: Use of urinal screens between individual urinals will be dependant on the function of the facility. Use of urinal screens will normally be limited to those applications where sanitary protection is required, such as between a urinal and an immediately adjacent lavatory. Style A screens should normally be between 600 to 900 mm (24 to 36 in) wide. Style E screens should normally be between 400 to 600 mm (18 to 24 in) wide. Wall hung, Style E, urinal screens will be used only where the supporting construction is masonry or concrete. Where high use is expected, choose the last bracketed sentence.

Conform urinal screens to CID A-A-60003, Type III, Style [A, floor supported] [B, ceiling hung] [C, overhead braced] [D, floor to ceiling hung] [E, floor to ceiling post supported]. Provide finish for surface of screens as [painted metal, Finish 1] [laminated plastic, Finish 3] [solid phenolic, Finish 4] [solid polyethylene, Finish 5] [_____]; water resistant; graffiti resistant; non-absorbent; [with plastic face sheets permanently fused to plastic core; 6 mm 1/4 inch radius beveled edges]. [Screens shall contain a minimum of [[20] [100] percent post-consumer recycled plastic] [[25] [30] [100] percent recycled steel, with a minimum of

[16][67] percent post-consumer recycled steel]]. [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total recycled content requirements. This item may contain post-consumer or post-industrial recycled content]. Furnish width and height of urinal screens as shown. [Provide thickness of 25 mm 1 inch.] Secure wall hung urinal screens with [a minimum of three wall stirrup brackets.] [1050 mm 42 inch long, continuous flanges.] Screens must be fabricated from the same types of panels and pilasters as the toilet partitions. Fittings and fasteners must be corrosion-resistant steel.

2.3 CEILING-HUNG PARTITIONS

NOTE: Delete the paragraph heading and the
following paragraph if ceiling-mounted partitions
are not required.

Pilasters must be not less than 31.75 mm 1-1/4 inch thick with face sheets not less than 1.613 mm 0.0635 inch thick. Anchoring device at the top of the pilaster must be welded to the reinforced face sheets and must have not less than two 9.525 mm 3/8 inch round threaded rods, lock washers, and leveling-adjustment nuts. Anchoring device must 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 must be 76.2 mm 3 inch high and fabricated from not less than 0.762 mm 0.030 inch thick stainless steel.

2.4 FLOOR-ANCHORED PARTITIONS

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

Pilasters must be not less than 31.75 mm 1-1/4 inch thick with face sheets not less than 1.613 mm 0.0635 inch thick. Provide anchoring device at the bottom of the pilaster consisting of a steel bar not less than 12.7 by 22.2 mm 1/2 by 7/8 inch welded to the reinforced face sheets and having not less than two 9.5 mm 3/8 inch round anchorage devices for securing to the floor slab. Provide anchorage devices complete with threaded rods, expansion shields, lock washers, and leveling-adjustment nuts. Trim piece at the floor must be 76.2 mm 3 inch high and fabricated from not less than 0.76 mm 0.030 inch thick corrosion-resistant steel.

2.5 OVERHEAD-BRACED PARTITIONS

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

Pilasters must be not less than 31.75 mm 1-1/4 inch thick with face sheets not less than 1.0 mm 0.0393 inch thick. Provide anchoring device at the bottom of the pilaster consisting of a channel-shaped floor stirrup fabricated from not less than 1.6 mm 0.0635 inch thick material and a leveling bolt. Stirrup must be secured to the pilaster with not less than a

4.76 mm 3/16 inch bolt and nut after the pilaster is leveled. Stirrup must be secured to the floor with not less than two lead expansion shields and sheetmetal screws. Overhead brace must be fabricated from a continuous extruded aluminum tube not less than 25.4 mm 1 inchwide by 38.1 mm 1-1/2 inch high, 3.2 mme 0.125-inch wall thickness. Finish must be AA-C22A31 in accordance with AA DAF-45. Set and secure brace into the top of each pilaster. Trim piece at the floor must be 76.2 mm 3 inch high and fabricated from not less than 0.76 mm 0.030 inch thick corrosion-resistant steel.

2.6 PILASTER SHOES

NOTE: Designer must verify that products meeting the indicated minimum recycled content are available, preferably from at least three sources, to ensure adequate competition. If not, write in suitable recycled content values that reflect availability and competition. Use second option if Contractor is choosing recycled content products in accordance with Section 01 33 29 LEED(tm) DOCUMENTATION.

Provide shoes at pilasters to conceal floor-mounted anchorage. Pilaster shoes shall be [aluminum] [stainless steel] [one piece molded HDPE] [_____]. [Shoes shall contain a minimum of [5] [10] [_____] percent post-consumer recycled content, or a minimum of [20] [40] [_____] percent post-industrial recycled content.] [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total recycled content requirements. Pilaster shoes may contain post-consumer or post-industrial recycled content.] Height shall be 76 mm 3 inches.

2.7 HARDWARE

Hardware for the toilet partition system shall conform to CID A-A-60003 for the specified type and style of partitions. [Hardware shall be pre-drilled by manufacturer.] Hardware finish shall be highly resistant to alkalies, urine, and other common toilet room acids. [Hardware shall include: chrome plated non ferrous cast pivot hinges, gravity type, adjustable for door close positioning; nylon bearings; black anodized aluminum door latch; door strike and keeper with rubber bumper; and cast alloy chrome plated coat hook and bumper, [_____].] Latching devices and hinges for handicap compartments shall comply with 36 CFR 1191 and shall be [chrome-plated steel] [or] [stainless steel] door latches that operate without either tight grasping or twisting of the wrist of the operator. [Screws and bolts shall be stainless steel, tamper proof type. Wall mounting brackets shall be continuous, full height, [aluminum] [stainless steel] [heavy duty plastic] [_____], in accordance with toilet compartment manufacturer's instructions. Floor-mounted anchorage shall consist of corrosion-resistant anchoring assemblies with threaded rods, lock washers, and leveling adjustment nuts at pilasters for structural connection to floor.]

2.6 COLORS AND FINISHES

2.6.1 Colors

NOTE: In areas where a high degree of damage,

corrosion, and frequent replacement has been experienced or where, for reasons of sanitation or appearance, additional cost is justified, partition finishes should be selected on the basis of Life Cycle Cost Analysis (LCC). The LCC analysis should be performed for a period of not less than ten years. For any project requiring non-combustible partitions, panels, screens, or door finishes, exclude finish No. 5.

Provide manufacturer's standard color charts for color of finishes for toilet partition system components. [Color of pilaster shoes shall match the core of solid plastic compartments and screens.]

2.6.2 Finishes No. 1 Through No. 3

Conform partitions, panels, screen, and door finishes to **CID A-A-60003** finished with [Finish No. 1, baked enamel] [Finish No. 2, stainless steel] [Finish No. 3, laminated plastic].

2.5.3 Finishes No.4 and No. 5

Provide solid plastic fabricated of [solid phenolic core with melamine facing sheets] [or] [polymer resins (polyethylene)] formed under high pressure rendering a single component section not less than **25.4 mm one inch** thick. Colors must extend throughout the panel thickness. Provide exposed finish surfaces: smooth, waterproof, non-absorbant, and resistant to staining and marking with pens, pencils, or other writing devices. Solid plastic partitions must not show any sign of deterioration when immersed in the following chemicals and maintained at a temperature of **27 degrees C 80 degrees F** for a minimum of 30 days:

Acetic Acid (80 percent)	Hydrochloric Acid (40 percent)
Acetone	Hydrogen Peroxide (30 percent)
Ammonia (liquid)	Isopropyl Alcohol
Ammonia Phosphate	Lactic Acid (25 percent)
Bleach (12 percent)	Lime Sulfur
Borax	Nicotine
Brine	Potassium Bromide
Caustic Soda	Soaps
Chlorine Water	Sodium Bicarbonate
Citric Acid	Trisodium Phosphate
Copper Chloride	Urea; Urine
Core Oils	Vinegar

PART 3 EXECUTION

3.1 PREPARATION

Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive work. Verify correct spacing of plumbing fixtures. Verify correct location of built in framing, anchorage, and bracing. Report in writing to Contracting Officer prevailing conditions that will adversely affect satisfactory execution of the work of this section. Do not proceed with work until unsatisfactory conditions have been corrected.

3.2 METAL PARTITION FABRICATION

- a. Fabricate metal **Partition Panels**, doors, screens, and pilasters required for the project from galvanized-steel face sheets with formed edges. Face sheets must be pressure-laminated to the sound-deadening core with edges sealed with a continuous locking strip and corners mitered and welded. Ground all welds smooth. Provide concealed reinforcement for installation of hardware, fittings, and accessories. Surface of face sheets must be smooth and free from wave, warp, or buckle.
- b. Before application of an enamel coating system, solvent-clean galvanized-steel surfaces to remove processing compounds, oils, and other contaminants harmful to coating-system adhesion. After cleaning, coat the surfaces with a metal-pretreatment phosphate coating. After pretreatment, finish exposed galvanized-steel surfaces with a baked-enamel coating system as specified.
- c. Provide an enamel coating system consisting of a factory-applied baked acrylic enamel coating system. Coating system must be a durable, washable, stain-resistant, mar-resistant finish.

3.3 INSTALLATION

NOTE: Toilet partitions in barracks, and other hard usage areas, as well as those partitions on which grab bars are to be mounted, will be bolted to walls. Through-bolting will be specified for these applications; except, toggle bolts may be specified when through-bolting would be exposed in a finished room or would otherwise be unsuitable.

Select anchorage devices for types of wall construction as required.

Install partitions rigid, straight, plumb, and level, with the panels centered between the fixtures. Provide a panel clearance of not more than **13 mm 1/2 inch** and secure the panels to walls and pilasters with not less than two wall brackets attached near the top and bottom of the panel. Locate wall brackets so that holes for wall bolts occur in masonry or tile joints. Secure Panels to pilasters with brackets matching the wall brackets. Provide for adjustment due to minor floor variations. Locate head rail joints at pilaster center lines. Install adjacent components for consistency of line and plane. Equip each door with hinges, one door latch, and one coat hook and bumper. Align hardware to uniform clearance at vertical edges of doors.

- a. Secure panels to hollow plastered walls with toggle bolts using not less than **M6x1 1/4-20** screws of the length required for the wall thickness. Toggle bolts must have a load-carrying strength of not less than **2668.9 newton 600 pounds** per anchor.
- b. Secure panels to ceramic tile on hollow plastered walls or hollow concrete-masonry walls with toggle bolts using not less than **M6x1 1/4-20** screws of the length required for the wall thickness. Toggle bolts must have a load-carrying strength of not less than **2668.9 newton 600 pounds** per anchor.

c. Secure panels to solid masonry or concrete with lead or brass expansion shields designed for use with not less than **M6x1 1/4-20** screws, with a shield length of not less than **38.1 mm 1-1/2 inch**. Expansion shields must have a load-carrying strength of not less than **2668.9 newton 600 pounds** per anchor.

d. Submit **Installation Drawings** for metal toilet partitions and urinal screens showing plans, elevations, details of construction, hardware, reinforcing and blocking, fittings, mountings and escutcheons. Indicate on drawings the type of partition, location, mounting height, cutouts, and reinforcement required for toilet-room accessories.

3.4 CEILING-HUNG PARTITIONS

NOTE: Delete the paragraph heading and the following paragraph if ceiling-mounted partitions are not required.

Secure pilasters to the structural support above with the anchorage device specified. Make all leveling devices readily accessible for leveling, plumbing, and tightening the installation. Bottoms of doors must be level with bottoms of pilasters when doors are in a closed position.

3.5 FLOOR-ANCHORED PARTITIONS

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

Secure pilasters to the floor with the anchorage device specified. Make all leveling devices readily accessible for leveling, plumbing, and tightening the installation. Tops of doors must be level with tops of pilasters when doors are in a closed position. Expansion shields must have a minimum **50.8 mm 2-inch** penetration into the concrete slab.

3.6 OVERHEAD-BRACED PARTITIONS

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

Secure pilasters to the floor with the anchorage device specified. Make all leveling devices readily accessible for leveling, plumbing, and tightening the installation. Overhead brace must be secured to the pilaster face with not less than two fasteners per face. Expansion shields must have a minimum **50.8 mm 2-inch** penetration into the concrete slab. Tops of doors must be parallel with the overhead brace when doors are in a closed position.

3.7 FINAL ADJUSTMENT

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

partition assembly. Doors shall have a uniform vertical edge clearance of approximately 5 mm 3/16 inch and shall rest open at approximately 30 degrees when unlatched.

3.8 CLEANING

Baked enamel finish shall be touched up with the same color of paint that was used for the finish. Clean all surfaces of the work, and adjacent surfaces soiled as a result of the work, in an approved manner compliant with the manufacturer's recommended cleaning and protection from damage procedures until accepted. Remove all equipment, tools, surplus materials, and work debris from the site.

3.9 WASTE MANAGEMENT

NOTE: Diverting waste from the landfill contributes
to the following LEED credit: MR2. Coordinate with
Section 02 42 00 CONSTRUCTION AND DEMOLITION WASTE
MANAGEMENT.

Identify manufacturer's policy for collection or return of [construction scrap,] [unused material,] [demolition scrap,] [packaging material]. Institute demolition and construction waste separation and recycling to take advantage of manufacturer's programs. When such a service is not available, seek local recyclers to reclaim the materials.

-- End of Section --