
USACE / NAVFAC / AFCEC / NASA UFGS-10 21 13 (August 2017)
Change 1 - 08/18

Preparing Activity: USACE Superseding
UFGS-10 21 13 (January 2007)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2018

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SECTION 10 21 13

TOILET COMPARTMENTS 08/17

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

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).

PART 1 GENERAL

NOTE: Army facilities will meet the requirements of UFC 3-101-01 and 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.

Include in the drawings:

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 DAF45	(2003; Reaffirmed 2009) Designation System for Aluminum Finishes
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ASTM INTERNATIONAL (ASTM)

ASTM A123/A123M	(2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
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ASTM A167	(2011) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A336/A336M	(2018) Standard Specification for Alloy Steel Forgings for Pressure and High-Temperature Parts
ASTM A385/A385M	(2017) Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip)
ASTM A653/A653M	(2017) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM B221	(2014) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B221M	(2013) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM B36/B36M	(2013) Standard Specification for Brass Plate, Sheet, Strip, and Rolled Bar
ASTM B456	(2017) Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium
ASTM B86	(2013) Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings
ASTM D6386	(2016) Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting
ASTM D7611/D7611M	(2013; E 2014) Standard Practice for Coding Plastic Manufactured Articles for Resin Identification

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers
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INTERNATIONAL CODE COUNCIL (ICC)

ICC A117.1 COMM	(2017) Standard And Commentary Accessible and Usable Buildings and Facilities
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SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS SCS Global Services (SCS) Indoor Advantage

SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)

SAE AMS2460 (2013; Rev A) Plating, Chromium

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

CID A-A-60003 (Basic) Partitions, Toilet, Complete

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

36 CFR 1191 Americans with Disabilities Act (ADA)
Accessibility Guidelines for Buildings and
Facilities; Architectural Barriers Act
(ABA) Accessibility Guidelines

UNDERWRITERS LABORATORIES (UL)

UL 2818 (2013) GREENGUARD Certification Program
For Chemical Emissions For Building
Materials, Finishes And Furnishings

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.

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.] [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-02 Shop Drawings

Fabrication Drawings

Installation Drawings; G[, [_____]]

SD-03 Product Data

Cleaning and Maintenance Instructions

Colors And Finishes

Galvanized Steel Sheet

Sound-Deadening Cores

Anchoring Devices and Fasteners

Hardware and Fittings

Brackets

Door Hardware

Toilet Enclosures

Room Entrance Screens

Urinal Screens

Pilaster Shoes

Finishes; G[, [_____]]

- [Recycled content for painted steel partitions and screens; S]
- [Recycled content for stainless steel partitions and screens; S]
- [Recycled content for plastic laminate partitions and screens; S]
- [Recycled content for plastic, solid polyethylene partitions and

screens; S]

SD-04 Samples

Colors and Finishes; G[, [_____]]

Hardware and Fittings

Anchoring Devices and Fasteners

SD-07 Certificates

Warranty

[Indoor air quality for laminated plastic partitions and screens; S]

[Indoor air quality for solid phenolic, black core partitions and screens; S]

SD-10 Operation and Maintenance Data

Plastic Identification; G[, [_____]]

SD-11 Closeout Submittals

1.3 CERTIFICATIONS

1.3.1 Indoor Air Quality

1.3.1.1 Laminated Plastic and Solid Phenolic Products

NOTE: The Government's preference is for use of products that have been certified for indoor air quality by a third-party organization such as Greenguard or SCS Global Services. However, it must be verified there is a certified product available that is both cost effective and appropriate for the project. The requirements of this paragraph are invoked when the designer of record confirms local/regional availability of Greenguard or SCS products and includes the bracketed requirements for indoor air quality certified products in Part 2 of this Section.

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party program that products meet the requirements of this Section. Provide current product certification documentation from certification body. When product does not have certification, provide validation that product meets the indoor air quality product requirements cited herein.

1.4 REGULATORY REQUIREMENTS

Conform to ICC A117.1 COMM 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 WARRANTY

Provide certification or warranties 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

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 alkalis, 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.

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

2.1 SYSTEM REQUIREMENTS

Provide a complete and usable toilet partition system, including toilet enclosures, room entrance screens, urinal screens, system of panels, hardware, and support components. 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.

2.1.1 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 D7611/D7611M. Where products are not labeled, provide product data indicating polymeric information in the Operation and Maintenance Manual.

Type 1	Polyethylene Terephthalate (PET, PETE)
Type 2	High Density Polyethylene (HDPE)
Type 3	Vinyl (Polyvinyl Chloride or PVC)
Type 4	Low Density Polyethylene (LDPE)
Type 5	Polypropylene (PP)
Type 6	Polystyrene (PS)
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.

2.2 MATERIALS

2.2.1 Galvanized Steel Sheet

Provide galvanized steel sheet cold-rolled, stretcher-level, commercial quality material, conforming to ASTM A653/A653M. Conform surface preparation of material for painting to ASTM D6386, Method A.

2.2.2 Sound-Deadening Cores

Provide sound deadening consisting of treated kraft paper honeycomb cores with a cell size of not more than 25 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.

2.2.3 Anchoring Devices and Fasteners

Provide steel anchoring devices and fasteners hot-dipped galvanized after fabrication, in conformance with ASTM A385/A385M and ASTM A123/A123M. Conceal all galvanized anchoring devices.

2.2.4 Brackets

Wall brackets must be two-ear panel brackets, T-style, 25 mm 1-inch stock. Provide stirrup style panel-to-pilaster brackets.

2.2.5 Hardware and Fittings

2.2.5.1 General Requirements

Conform hardware for the toilet partition system 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; provide [chrome-plated steel] [or] [stainless steel] devices and hinges with door latches that operate without either tight grasping or twisting of the wrist of the operator. Submit three samples of each item, including anchoring devices and fasteners. Approved hardware samples may be

installed in the work if properly identified.

Material	Conformance Standard
Cold-rolled sheet steel	ASTM A336/A336M, commercial quality
Zinc-base alloy	ASTM B86, Alloy AC41-A
Brass	ASTM B36/B36M, Alloy C26800
Aluminum	ASTM B221M ASTM B221
Corrosion-resistant steel	ASTM A167, Type [302][304]

2.2.5.2 Finishes

- [a. Chrome plating must conform to ASTM B456.]
- [b. Finish must conform to SAE AMS2460, Class I, Type [I][II].]
- [c. Aluminum must have a clear anodic coating conforming to AA DAF45.]
- [d. Corrosion-resistant steel must have a No. 4 finish.]
- [e. Exposed fasteners must match the hardware and fittings.]

2.2.6 Door Hardware

2.2.6.1 Hinges

Hinges must be adjustable to hold in-swinging doors open at any angle up to 90 degrees and outswinging doors to 10 degrees. Provide self-lubricating hinges with the indicated swing. Hinges must [be the surface-mounted type.] [be the cutout-insert type.] [have the following type of return movement:

- [a. Gravity return movement]
- [b. Spring-action cam return movement]
- [c. Torsion-rod return movement]]

2.2.6.2 Latch and Pull

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

2.2.6.3 Coat Hooks

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

2.3 PARTITION PANELS AND DOORS

Fabricate partition panels and doors not less than 25 mm 1 inch thick with face sheets not less than 1.006 mm 0.0396 inch thick.

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows painted steel, stainless steel, plastic laminate and solid polyethylene products are available among US national manufacturers above the minimum recycled content percentages shown below.

[Provide painted steel toilet partitions and screens with recycled content of 27 percent minimum. Provide data identifying percentage of recycled content for painted steel partitions and screens.][Provide stainless steel toilet partitions and screens with recycled content of 50 percent minimum. Provide data identifying percentage of recycled content for stainless steel partitions and screens.] [Provide plastic laminate toilet partitions and screens with recycled content of 45 percent minimum. Provide data identifying percentage of recycled content for plastic laminate partitions and screens.] [Provide solid polyethylene toilet partitions and screens with recycled content of 30 percent minimum. Provide data identifying percentage of recycled content for plastic, solid polyethylene partitions and screens.]

NOTE: Based on research, certain base materials such as Plastic Laminated Clad and Phenolic (Black Core) are available from US national manufacturers as a reduced VOC product certified by Greenguard or SCS Global Services. Retain one of the last bracketed sentences requiring products with indoor air quality certification when the designer of record confirms local/regional availability of Greenguard or SCS products that does not impact cost effectiveness.

Provide laminated plastic and solid phenolic toilet partitions and urinal screens to meet the emissions requirements of CDPH SECTION 01350 (use the office or classroom requirements, regardless of space type). [Provide certification or validation of indoor air quality for laminated plastic partitions and screens.][Provide certification or validation of indoor air quality for solid phenolic, black core partitions and screens.]

2.3.1 Toilet Enclosures

Provide and 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][stainless steel, Finish 2][laminated plastic, Finish 3][solid phenolic, black core Finish 4][solid phenolic, color through the core Finish 4A][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]. Reinforce panels indicated to receive toilet paper holders or grab bars 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.

2.3.2 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.

Provide and 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] [____]. Provide finish surface of screens to be [painted metal, Finish 1][stainless steel, Finish 2][laminated plastic, Finish 3][solid phenolic, black core Finish 4][solid phenolic, color through the core Finish 4A][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]. 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.

2.3.3 Urinal Screens

NOTE: Use of urinal screens between individual urinals will be dependent 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 inches wide. Style E screens should normally be between 400 to 600 mm 18 to 24 inches 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.

Provide and 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][stainless steel, Finish 2][laminated plastic, Finish 3][solid phenolic, black core Finish 4][solid phenolic, color through the core Finish 4A][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]. 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.] Fabricate screens from the same types of panels and pilasters as the toilet partitions. Use corrosion-resistant steel fittings and fasteners.

2.4 CEILING-HUNG PARTITIONS

NOTE: Delete this 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.

2.5 FLOOR-ANCHORED PARTITIONS

NOTE: Delete this 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.

2.6 OVERHEAD-BRACED PARTITIONS

NOTE: Delete this 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. Secure the stirrup to the pilaster with not less than a 4.76 mm 3/16 inch bolt and nut after the pilaster is leveled. Secure the stirrup to the floor with not less than two lead expansion shields and sheetmetal screws. Fabricate overhead brace from a continuous extruded aluminum tube not less than 25.4 mm 1 inch wide by 38.1 mm 1-1/2 inch high, 3.2 mm 0.125-inch wall thickness. Finish must be AA-C22A31 in accordance with AA DAF45. Set and secure brace into the top of each pilaster. Fabricate 76.2 mm 3 inch high trim piece at the floor from not less than 0.76 mm 0.030 inch thick corrosion-resistant steel.

2.7 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 SUSTAINABILITY REPORTING.

Provide shoes at pilasters to conceal floor-mounted anchorage. Pilaster shoes must be [aluminum] [stainless steel] [one piece molded HDPE] [_____]. [See Section 01 33 29 SUSTAINABILITY REPORTING for cumulative total recycled content requirements.] Height must be 76 mm 3 inches.

2.8 HARDWARE

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

2.9 COLORS AND FINISHES

2.9.1 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 must match the core of solid plastic compartments and screens.] Submit three samples showing a finished edge on two adjacent sides and core construction, each not less than 304.8 mm 12-inch square

2.9.2 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].

2.9.3 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-absorbent, 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

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

Do not install items that show visual evidence of biological growth. 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 N 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 N 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 N 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 this 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. Level the bottoms of doors with bottoms of pilasters when doors are in a closed position.

3.5 FLOOR-ANCHORED PARTITIONS

NOTE: Delete this 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. Level tops of doors 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 this 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. Secure overhead brace 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. Make tops of doors 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 must have a uniform vertical edge clearance of approximately 5 mm 3/16 inch and must rest open at approximately 30 degrees

when unlatched.

3.8 CLEANING

Baked enamel finish must 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.

-- End of Section --