SECTION 10 21 13

TOILET COMPARTMENTS
08/17

PART 1 GENERAL

1.1 REFERENCES

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.

INTERNATIONAL CODE COUNCIL (ICC)

ICC A117.1 COMM	(2017) Standard and Commentary Accessible and Usable Buildings and Facilities

JAPANESE STANDARDS ASSOCIATION (JSA)

JIS A 1901	(2015) Determination of the Emission of Volatile Organic Compounds and Aldehydes by Building Products - Small Chamber Test Method
JIS G 3203	(1988) Alloy Steel Forgings for Pressure Vessels for High-Temperature Service
JIS G 3302	(2022) Hot Dip Zinc Coated Steel Sheet and Strip
JIS G 4304	(2021) Hot-Rolled Stainless Steel Plate, Sheet and Strip
JIS H 3100	(2018) Copper and Copper Alloy Sheets, Plates and Strips
JIS H 4040	(2015) Aluminum and Aluminum Alloy Bars and Wires
JIS H 5301	(2018) Zinc Alloy Die Castings
JIS H 8601	(1999) Anodic Oxide Coatings on Aluminum and Aluminum Alloys
JIS H 8617	(1999) Electroplated Coatings of Nickel and Chromium
JIS H 8641	(2021) Hot Dip Galvanized Coatings
JIS K 6899	(2015) Plastics-symbols and Abbreviations-Part 1: Basic Polymers and Their Properties

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

1.2 SUBMITTALS

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-07 Certificates

Warranty

SD-10 Operation and Maintenance Data

Plastic Identification; G[, [_____]]

1.3 REGULATORY REQUIREMENTS

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

1.4 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.

1.5 WARRANTY

Provide manufacturer's warranty to repair or replace defective materials and workmanship for a period of [one year][____] [years] from date of final acceptance of the work.

PART 2 PRODUCTS

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

Verify that plastic products to be incorporated into the project are labeled in accordance with JIS K 6899. 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 JIS G 3302. Conform surface preparation of material for painting to JIS H 8617.

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. 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 JIS G 3302 and JIS H 8641. Conceal all galvanized anchoring devices.

2.2.4 Brackets

Wall brackets must be two-ear panel brackets, T-style, 25 mm 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 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	JIS G 3203, commercial quality
Zinc-base alloy	JIS H 5301 ZDC-1
Brass	JIS H 3100, Alloy C26800
Aluminum	JIS H 4040
Corrosion-resistant steel	JIS G 4304, Type [SUS302][SUS304]

2.2.5.2 Finishes

[a. Chrome plating must conform to JIS H 8617.]

[b. Finish must conform to JIS H 8617, Class I (Corrosion Protective Plasting), Type [I, Bright] [II, Satin].]

[c. Aluminum must have a clear anodic coating conforming to JIS H 8601.]

[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 thick with face sheets not less than 1.006 mm thick.

[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.]

Provide laminated plastic and solid phenolic toilet partitions and urinal screens to meet the emissions requirements of JIS A 1901 (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 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.] 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 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. Grab bars must not rotate within their fittings.

2.3.2 Room Entrance Screens

Provide 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 radius beveled edges]. Furnish length and height of screens as shown. [Provide thickness of 25 mm.] Fabricate screens from the same types of panels, pilasters, and fittings as the toilet partitions.

2.3.3 Urinal Screens

Provide and conform urinal screens 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 radius beveled edges]. Furnish width and height of urinal screens as shown. [Provide thickness of 25 mm.] Secure wall hung urinal screens with [a minimum of three wall stirrup brackets.] [1050 mm long, continuous flanges.] Fabricate screens from the same types of panels and pilasters as the toilet partitions. Use corrosion-resistant stainless steel fittings and fasteners.

2.4 CEILING-HUNG PARTITIONS

Pilasters must be not less than 31.75 mm thick with face sheets not less than 1.613 mm 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 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 high and fabricated from not less than 0.762 mm thick stainless steel.

2.5 FLOOR-ANCHORED PARTITIONS

Pilasters must be not less than 31.75 mm thick with face sheets not less than 1.613 mm thick. Provide anchoring device at the bottom of the pilaster consisting of a steel bar not less than 12.7 by 22.2 mm welded to the reinforced face sheets and having not less than two 9.5 mm 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 high and fabricated from not less than 0.76 mm thick corrosion-resistant stainless steel.

2.6 OVERHEAD-BRACED PARTITIONS

Pilasters must be not less than 31.75 mm thick with face sheets not less than 1.0 mm 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 thick material and a leveling bolt. Secure the stirrup to the pilaster with not less than a 4.76 mm 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 mm wide by 38 mm high, 3.2 mm wall thickness. Finish must be clear anodized with a minimum 0.4 mils or thicker in accordance with JIS H 8601. Set and secure brace into the top of each pilaster. Fabricate 75 mm high trim piece at the floor from not less than 0.75 mm thick corrosion-resistant stainless steel.

2.7 PILASTER SHOES

Provide shoes at pilasters to conceal floor-mounted anchorage. Pilaster shoes must be [aluminum] [stainless steel] [one piece molded HDPE] [_____]. Height is a minimum 76 mm.

2.8 HARDWARE

Provide hardware for the toilet partition system 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

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 square

2.9.2 Finishes No. 1 Through No. 3

Conform partitions, panels, screen, and door finishes 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 mm 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 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

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 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 screws of the length required for the wall thickness. Toggle bolts must have a load-carrying strength of not less than 2668.9 N 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 screws of the length required for the wall thickness. Toggle bolts must have a load-carrying strength of not less than 2668.9 N per anchor.

c. Secure panels to solid masonry or concrete with lead or brass expansion shields designed for use with not less than M6x1 screws, with a shield length of not less than 38 mm. Expansion shields must have a load-carrying strength of not less than 2668.9 N 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

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

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 mm penetration into the concrete slab.

3.6 OVERHEAD-BRACED PARTITIONS

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 mm 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 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 --