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WW-P-541E/GEN
August 1, 1980
SUPERSEDING
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October 12, 1971

FEDERAL SPECIFICATION

PLUMBING FIXTURES
(GENERAL SPECIFICATION)

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the general requirements for plumbing fixtures. Specific requirements are covered by the applicable specification sheet (see 6.3).

1.2 Classification. Specific requirements relating to particular fixtures shall be specified in the specification sheet.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specification:

WW-S-1912 - Seat Water Closet (Land Use).

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions as outlined under General Instructions in the Index of Federal Specifications, Standards and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification, other Federal specifications, and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston; New York; Washington, DC; Philadelphia; Atlanta, Chicago; Kansas City, MO; Fort Worth; Houston; Denver; San Francisco; Los Angeles; and Seattle, WA.

(Federal Government activities may obtain copies of Federal specifications, standards, and commercial item descriptions, and the Index of Federal Specifications, Standards and Commercial Item Descriptions from established distribution points in their agencies.)

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Military Specifications:

MIL-F-19017 - Fitting, Plumbing, Water Closet.
MIL-V-29193 - Valve, Flush (Flushometer) Land Use.

Military Standard:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

(Copies of Military specifications and standards, required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this to the specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

American National Standards Institute (ANSI) Standards:

A112.1.2 - Air Gaps in Plumbing Systems.
A112.6.1 - Supports for Off-the-Floor Plumbing Fixtures for Public Use.
A112.18.1 - Finished and Rough Brass Plumbing Fixture Fittings.
A112.19.1M - Enameled Cast Iron Plumbing Fixtures.
A112.19.2 - Vitreous China Plumbing Fixtures.
A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use).
A112.19.4 - Porcelain Enameled Formed Steel Plumbing Fixtures.
A112.19.5 - Trim for Water-Closet Bowls, Tanks, and Urinals.
B16.23 - Cast Bronze Solder Joint Drainage Fittings - DWV.
B16.29 - Wrought Copper and Wrought Copper Alloy Solder - Joint Drainage Fittings.
Z124.1 - Plastic Bathtub Units.
Z124.2 - Gel-Coated Glass Fiber Reinforced Polyester Resin Receptor and Shower Stall Units.
Z124.3 - Plastic Lavatories.

(Application for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York, NY 10018.)

American Society for Testing and Materials (ASTM) Standards:

A90 - Weight of Coating on Zinc Coated (Galvanized) Iron or Steel Articles, Tests for.
B86 - Specification for Zinc-Base Alloy Die Castings.
B287 - Acetic Acid-Salt Spray (Fog), Testing.
E376 - Coating Thickness by Magnetic Field or Eddy Current (Electro-Magnetic) Test Methods, Recommended Practice for Measuring.

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F409 - Acrylonitrile-Butadiene-Styrene (ABS) and Polyvinyl Chloride (PVC) Accessible and Replaceable Plastic Tube and Tubular Fittings.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

American Society of Sanitary Engineering (ASSE) Standards:

No. 1014 - Performance Requirements for Hand (Telephone) Showers.
No. 1016 - Performance Requirements for Individual Shower Control Valves Anti-Scald Type.

(Application for copies should be addressed to the American Society of Sanitary Engineering, 960 Illuminating Bldg., Cleveland, OH 44113.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.)

National Sanitation Foundation (NSF) Standard:

No. 14 - Thermoplastic Materials, Pipe, Fittings, Valves, Traps, and Joining Materials.

(Application for copies should be addressed to the National Sanitation Foundation, 3475 Plymouth Road, Ann Arbor, MI 48106.)

Underwriters' Laboratories, Inc. (UL):

Electrical Appliance and Utilization Equipment List.
Electrical Construction Material List.

(Application for copies should be addressed to the Underwriters' Laboratories, Inc ., 333 Pfingsten Road, Northbrook, IL 60062.)

Uniform Classification Committee, Agent:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Tariff Publishing Officer, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Materials and components. Materials and components shall be as stated hereinafter. Those not definitely stated shall be the manufacturer's current commercial practice.

3.2 Standard commercial product. The plumbing fixtures shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the unit being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs or brochures, and represents the latest production

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3.3 Fixtures. Plumbing fixtures shall conform to the requirements of the specified standards except as specified hereinafter.

3.3.1 Enameled cast iron. Enameled cast iron plumbing fixtures shall conform to ANSI A112.19.1M.

3.3.2 Vitreous china. Vitreous china plumbing fixtures shall conform to ANSI A112.19.2.

3.3.3 Stainless steel. Stainless steel plumbing fixtures shall conform to ANSI A112.19.3.

3.3.4 Porcelain enameled formed steel. Porcelain enameled formed steel plumbing fixtures shall conform to ANSl A112.19.4.

3.3.5 Trim for water closets and urinals. Trim shall conform to ANSI A112.19.5.

3.3.6 Nonmetallic fixtures.

3.3.6.1 Plastic bathtubs. Plastic bathtubs shall be in accordance with ANSI Z124.1.

3.3.6.2 Shower receptor and shower stall units. Plastic shower receptors and shower stall units shall be in accordance with ANSI Z124.2.

3.3.6.3 Plastic lavatories. Plastic lavatories shall be in accordance with ANSI Z124.3.

3.4 Faucets and stop valves. Faucets and stop valves shall conform to ANSI A112.18.1 except for toxicity requirements.

3.4.1 Contaminant levels, nonmetallic materials only. Nonmetallic materials in contact with potable water shall conform to the "potable water applications" requirement of NSF No. 14 (see 4.7.1.2).

3.5 P traps, drain-waste-vent (DWV).

3.5.1 Copper and copper alloy. Copper and copper alloy P traps shall conform to ANSI B16.23 or B16.29 as applicable.

3.5.2 Plastic. Plastic P traps shall conform to ASTM F409.

3.6 Supports. Off-the-floor fixture supports shall conform to ANSI A112.6.1

3.7 Air gaps. Air gaps shall be in accordance with ANSI A112.1.2.

3.8 Surface treatment of specific materials.

3.8.1 Metal plating on metal. Plating on metal shall be in accordance with ANSI Al12.18.1.

3.8.1.1 Interior use. The plated surface shall show no evidence of corrosion when tested for 8 hours as specified in 4.7.10.1.

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3.8.1.2 Exterior use. The plated surface shall show no evidence of corrosion when tested for 24 hours as specified in 4.7.10.1.

3.8.2 Metal plating on plastics. The metal coat on plastics shall not lift off when tested in accordance with 4.7.10.2.

3.8.3 Stainless steel. Unless otherwise specified hereinafter, stainless steel shall be finished with a No. 4 general-purpose polished finish (see 6.4).

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

(a) Quality conformance inspection (see 4.3).
(b) Preparation for delivery inspection (see 4.8).

4.3 Quality conformance inspection. Unless otherwise specified in the detailed specifications, quality conformance inspection shall be performed on the sample fixtures selected in accordance with 4.5. This inspection shall include the examination in 4.6 and the tests of 4.7.

4.4 Inspection lot. All fixtures of the same description, offered to the Government at one time shall be considered a lot for purpose of inspection. A sample unit shall be one complete fixture.

4.5 Sampling. A random sample of fixtures shall be selected from each lot in accordance with MIL-STD-105.

4.5.1 Sampling for examination. Examination of the fixtures shall be based on inspection level S-4 and an Acceptable Quality Level (AQL) of 2.5 percent defective.

4.5.2 Sampling for tests. Tests of the fixtures shall be based on inspection level S-2 and an AQL of 4.0 percent defective.

4.6 Examination. Each sample selected in accordance with 4.5.1 shall be examined for compliance with the requirements of the applicable ANSI and detailed specification. Any redesign or modification of the contractor’s standard product to comply with specified requirement or any necessary redesign or modification following failure to meet specified requirements shall receive particular attention for adequacy and suitability. This inspection shall include, but not be limited to, visual examination for flaws, such as blemishes, warpage, missing or damaged components, materials not as specified, dimensions and tolerance.

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4.7 Tests. Each sample selected in accordance with 4.5.2 shall be tested as specified herein and as specified in the applicable detailed specification.

4.7.1 Frequency of tests.

4.7.1.1 Life (endurance) tests, faucets, and valves. Life tests in accordance with ANSI A112.18.1 shall be performed on three faucets and valves from the first lot produced for each type and size. Unless otherwise specified (see 6.2), life tests shall be performed on subsequent lot only upon change in design, material, or location of manufacture.

4.7.1.2 Toxicity. When specified (see 6.2), a toxicity test shall be conducted on one item of the first lot produced and thereafter only upon change in materials except that no test shall be required on any item approved by NSF or FDA for potable water use. This test is not applicable to DWV fittings (see 4.7.6.1).

4.7.2 Test methods.

4.7.2.1 Enameled cast iron fixtures. Test enameled cast iron fixtures in accordance with ANSI A112.19.1M.

4.7.2.2 Vitreous china fixtures. Test in accordance with ANSI A112.19.2.

4.7.3 Stainless steel plumbing fixtures. Test stainless steel plumbing fixtures in accordance with ANSI A112.19.3.

4.7.4 Porcelain enameled formed steel. Test porcelain enameled formed steel plumbing fixtures in accordance with ANSI A112.19.4.

4.7.5 Plastic fixtures.

4.7.5.1 Bathtub units. Test bathtub units in accordance with ANSI Z124.1.

4.7.5.2 Shower receptor and shower stall units. Test shower receptor and shower stall units in accordance with ANSI Z124.2.

4.7.5.3 Lavatories. Test lavatories in accordance with ANSI Z124.3.

4.7.6 Faucets and valves. Test faucets and valves in accordance with ANSI A112.18.1 (see 3.4).

4.7.6.1 Contaminant level test. Determine contaminant levels in accordance with NSF No. 14 for conformance to 3.4.1 (see 4.7.1.2).

4.7.7 Plastic trap joints. Test plastic trap joints for leakage in accordance with ASTM F409 as applicable (see 3.5.2).

4.7.8 Supports. Test supports for off-the-floor plumbing fixtures in accordance with ANSI A112.6.1.

4.7.9 Air gaps. Measure air gaps as specified in ANSI A112.1.2. Failure to pass this test shall cause rejection and reinspection in accordance with MIL-STD-105.

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4.7.10 Metal plating tests.

4.7.10.1 Plating on metals. Test plating on metals in accordance with ASTM B287. At end of test period, examine specimen for conformance to 3.8.1.1 or 3.8.1.2 as applicable.

4.7.10.2 Plating on plastics. Test plating on plastics as follows (see 3.8.2):

(a) Place the units in an oven heated to 160 deg. Fahrenheit (F). Leave them in the oven for a period of at least 1 hour. Remove from oven and air cool to room temperature.
(b) Allow units to remain at room temperature for 1 hour +/- 5 minutes.
(c) Place the units in a cold chamber maintained at -20 deg. +/- 2 deg. F. Leave them in the chamber for a period of at least 1 hour. Remove from the chamber and air warm to room temperature.
(d) Allow units to remain at room temperature as in (b) above.
(e) Scribe an X of convenient size through the coat using a razor blade or sharp knife.
(f) Place a piece of 3/4-inch wide transparent tape over the X and press firmly against the X, then remove quickly.

4.8 Preparation for delivery inspection. The packaging, packing, and marking shall be inspected to determine conformance with section 5.

5. PREPARATION FOR DELIVERY

5.1 Commercial preparation for delivery requirements. Unless otherwise specified (see 6.2 and 6.6), plumbing fixtures of like description shall be packaged in accordance with normal commercial practice and packed in suitable containers that will assure acceptance by commercial carrier and provide protection against damage. The shipping container shall be in accordance with National Motor Freight Classification and Uniform Freight Classification. Interior packages and shipping containers shall be marked as specified in the contract or order.

6. NOTES

6.1 Intended use. Most plumbing fixtures are intended for interior use. Others, such as some drinking fountains, are intended for exterior use.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

(a) Title, number, and date of this specification.
(b) Frequency of life tests (see 4.7.1.1).
(c) When toxicity test is required (see 4.7.1.2).
(d) If packaging, packing, and marking is other than specified (see 5.1 and 6.6).

6.3 Detailed specifications. The following detailed specifications are applicable to this specification:

WW-P-541/1 - Plumbing Fixtures (Water Closets).
WW-P-541/2 - Plumbing Fixtures (Urinals).

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WW-P-541/3 - Plumbing Fixtures (Bathtubs).
WW-P-541/4 - Plumbing Fixtures (Lavatories).
WW-P-541/5 - Plumbing Fixtures (Sinks, Kitchen, Service, and Laundry Trays).
WW-P-541/6 - Plumbing Fixtures (Drinking Fountains).
WW-P-541/7 - Plumbing Fixtures (Shower Bath and Emergency Eye and Face Wash Outfits).
WW-P-541/8 - Plumbing Fixtures (Accessories, Land Use).
WW-P-541/9 - Plumbing Fixtures (Medical Facilities, Land Use).

6.4 Stainless steel surface finishes. Stainless steel surface finishes are described in the following publication:

Steel Products Manual:

Stainless and Heat Resisting Steels.

(Application for copies should be addressed to the American Iron and Steel Institute, 1000 16th Street, N.W., Washington, DC 20036.)

6.5 Other items. The supports, fixture fittings, and flushometers that do not appear in these specifications shall be procured by the following specifications:

Supports for Off-the-Floor Plumbing Fixtures - ANSI A112.6.1.
Finished and Rough Brass Plumbing Fixture Fittings - ANSI A112.18.1.
Flush Valves (Flushometer) for Urinals and Water Closets - MIL-V-29193.

6.6 Military preparation for delivery requirements. The requirements in 5.1 are designed primarily for commercial type shipments. When additional requirements for level A or B military shipments are required, the necessary instructions will be included in the contract or order.

MILITARY CUSTODIANS:

Army - ME
Navy - YD
Air Force - 99

Review activity:

DLA - CS

User activities:

Army - CE
Navy - MC, MS

CIVIL AGENCY COORDINATING ACTIVITIES:

DOE - AEC
GSA - FSS
HUD - TCS

Preparing activity:

Navy - YD

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Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.

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WW-P-541E/GEN
AMENDMENT-1
16 April 1990

FEDERAL SPECIFICATION

PLUMBING FIXTURES (GENERAL SPECIFICATION)

This amendment, which forms a part of WW-P-541E/GEN, dated August 1, 1980, is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal Agencies.

Page 1

Paragraph 2.1

DELETE: WW-S-1912 - Seat Water Closet (Land Use)

ADD: A-A-238 - Seat, Water Closet

Page 2

Paragraph 2.1

DELETE: MIL-F-19017 - Fitting, Plumbing, Water Closet

CHANGE: MIL-V-29193, title to read: "Valve, Flush (Flushometer), Water Closet, Urinal, and Service Sink"

Paragraph 2.2

DELETE: ANSI A112.6.1, A112.18.1, A112.19.1M, A112.19.2, A112.19.3, A112.19.4

ADD: ANSI A112.6.1M, A112.19.2M, A112.19.4M

CHANGE: ANSI B16.23, title to read: "Cast Copper Alloy Solder Joint Drainage Fittings - DWV"

CHANGE: ANSI Z124.2, title to read: "Plastic Shower Receptor and Shower Stalls"

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ADD: American Society of Mechanical Engineers (ASME)

ASME A112.18.1M - Plumbing Fixture Fittings
ASME A112.19.1M - Enameled Cast Iron Plumbing Fixtures
ASME A112.19.3M - Stainless Steel Plumbing Fixtures (Designed for Residential Use)

(Application for copies should be addressed to the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017.)

DELETE: ASTM B 287 - Acetic Acid-Salt Spray (Fog Testing)

ADD: ASTM G 85 - Modified Salt Spray (Fog) Testing, Practice for

CHANGE: ASTM F 409, title to read: "Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings"

Page 3

Paragraph 2.2

CHANGE: ASSE No. 1014, title to read: "Plumbing Requirements for Hand Held Showers"

CHANGE: ASSE address to read: "P.O. Box 40362, Bay Village, OH 44140."

CHANGE: NSF No. 14, title to read: "Plastic Piping Components and Related Materials"

DELETE: Electrical Construction Material List

Page 4

Paragraph 3.3.1

CHANGE: ANSI A112.19.1M to ASME A112.19.1M

Paragraph 3.3.2

CHANGE: ANSI A112.19.2 to ANSI A112.19.2M

Paragraph 3.3.3

CHANGE: ANSI A112.19.3 to ASME A112.19.3M

Paragraph 3.3.4

CHANGE: ANSI A112.19.4 to ANSI A112.19.4M

Paragraphs 3.4 and 3.8.1

CHANGE: ANSI A112.18.1 to ASME A112.18.1M

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Paragraph 3.6

CHANGE: ANSI A112.6.1 to ANSI A112.6.1M

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Paragraphs 4.7.1.1 and 4.7.6

CHANGE: ANSI A112.18.1 to ASME A112.18.1M

Paragraph 4.7.2.1

CHANGE: ANSI A112.19.1M to ASME A112.19.1M

Paragraph 4.7.2.2

CHANGE: ANSI A112.19.2 to ANSI A112.19.2M

Paragraph 4.7.3

CHANGE: ANSI A112.19.3 to ASME A112.19.3M

Paragraph 4.7.4

CHANGE: ANSI A112.19.4 to ANSI A112.19.4M

Paragraph 4.7.8

CHANGE: ANSI A112.6.1 to ANSI A112.6.1M

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Paragraph 4.7.10.1

REPLACE: ASTM B 287 with ASTM G 85

Page 8

Paragraph 6.5

CHANGE: ANSI A112.6.1 and ANSI A112.18.1 to ANSI A112.6.1M and
ASME A112.18.1M respectively