ASME A112.19.12-2006

(Revision of ASME A112.19.12-2000)

Wall Mounted, Pedestal Mounted, Adjustable, Elevating, Tilting, and Pivoting Lavatory, Sink, and Shampoo Bowl Carrier Systems and Drain Waste Systems

AN AMERICAN NATIONAL STANDARD

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Three Park Avenue • New York, NY 10016

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ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME website under the Committee Pages at http://www.asme.org/codes/ as they are issued.

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FOREWORD

In 1990, the Americans With Disabilities Act passed in Congress. This Act was intended to increase the accessibility of building elements to those who have limitations in physical ability. As a result of the technological response to the need for greater adaptability of plumbing components for accessibility purposes, this Standard and others are being prepared by ASME Standards Committee A112, Standardization of Plumbing Materials and Equipment.

This Standard relates to performance requirements for wall mounted, adjustable, elevating, tilting, and pivoting lavatory, sink, and shampoo bowl carrier systems and waste systems. Such systems allow the user to adjust the location of a lavatory, shampoo bowl, or sink upwards and downwards. Some products also adjust from side to side and/or front to back in order to minimize the ease of use of the fixture. Some products also pivot or tilt to allow greater ease of fixture use. The performance tests within this Standard were determined to be commensurate with normal fixture use.

This original Standard and the current revisions were based on standards that were developed by two ad hoc committees of the International Association of Plumbing and Mechanical Officials (IAPMO). The proposed standards were subsequently referred to the ASME A112 Standards Committee for development of an American National Standard.

This revision provides new and improved requirements, and test methods for elevating carrier systems, telescoping standpipe waste systems, elevating sinks, lavatories, and shampoo bowls for use by or with handicapped persons.

Suggestions for improvement of this Standard will be welcomed. They should be sent to The American Society of Mechanical Engineers; Attn: Secretary, A112 Standards Committee; Three Park Avenue; New York, NY 10016-5990.

This Standard was approved as an American National Standard on July 24, 2006.

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Standardization of Plumbing Materials and Equipment

(The following is the roster of the Committee at the time of approval of this Standard.)

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Secretary, A112 Standards Committee
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Proposing Revisions. Revisions are made periodically to this Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The A112 Standards Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the edition, the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal including any pertinent documentation. When appropriate, proposals should be submitted using the A112 Project Initiation Request Form.

Interpretations. Upon request, the Committee will render an interpretation of any requirement of their Standards. Interpretations can only be rendered in response to a written request sent to the Secretary of the A112 Standards Committee.

The request for an interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. The inquirer may also include any plans or drawings, which are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format will be rewritten in this format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The A112 Standards Committee schedules meetings as needed, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the A112 Standards Committee. The A112 home page contains information on future meeting dates and locations.

WALL MOUNTED, PEDESTAL MOUNTED, ADJUSTABLE, ELEVATING, TILTING, AND PIVOTING LAVATORY, SINK, AND SHAMPOO BOWL CARRIER SYSTEMS AND DRAIN WASTE SYSTEMS

1 GENERAL

1.1 Scope

This Standard establishes physical requirements and tests addressing structural strength; adjustments; materials; drain line hydraulics; mechanical, material, testing, marking, and documentation requirements for wall mounted and pedestal mounted adjustable, elevating, tilting and pivoting lavatory, sink, and shampoo bowl carrier systems intended to facilitate use by individuals who are physically challenged.

The use of alternate materials or methods are permitted, provided the proposed material and method complies with the performance requirements and intent of this Standard.

1.2 Units of Measurement

Values are stated in U.S. Customary units and the International System of Units (SI). The U.S. Customary units shall be considered as the standard.

In this Standard, gallons (U.S. liquid) per minute is abbreviated as gpm.

1.3 Reference Standards

The following documents form a part of this Standard to the extent specified herein. The latest issue shall apply.

ANSI Z124.3, Plastic Lavatories
ANSI Z124.6, Plastic Sinks
Publisher: International Association of Plumbing and Mechanical Officials (IAPMO), 5001 East Philadelphia Street, Ontario, CA 91761

ASME A112.18.2/CSA B125.2, Plumbing Waste Fittings
ASME A112.18.6, Flexible Water Connectors
ASME A112.19.1M, Enameled Cast Iron Plumbing Fixtures
ASME A112.19.2, Vitreous China Plumbing Fixtures
ASME A112.19.3M, Stainless Steel Plumbing Fixtures (Designed for Residential Use)
ASME A112.19.4M, Porcelain Enameled Formed Steel Plumbing Fixtures
ASME A112.19.9M, Non-Vitreous Ceramic Plumbing Fixtures
Publisher: The American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5900; Order Department: 22 Law Drive, P.O. Box 2300, Fairfield, NJ 07007-2300

ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities
Publisher: International Code Council (ICC), 5203 Leesburg Pike, Falls Church, VA 22041

ASTM D 2564, Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems
Publisher: ASTM International (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959

Fed Spec RR-W-410, Wire Rope and Strand Mil Spec 20668 Terminal, Wire Rope, Swaging, Eye End
Publisher: Defense Printing Service Detachment Office, Building 4-D, 700 Robbins Avenue, Philadelphia, PA 19111-5094

1.4 Definitions

each junction: the point (junction) at the top end of each pipe or section of pipe or tailpiece where a sealing method is used to make it watertight.

multiple stage: using three or more sizes of pipe or tubing, each one inside another, installed vertically to provide telescoping possibility, with a sealing mechanism at the top of the lower or outer pipe and the top or bottom of each of the other pieces at the joining point between each of the pieces to make each junction watertight.

single stage: using two sizes of pipe or tubing, one inside the other, installed vertically to provide telescoping possibility, with a sealing mechanism at the top of the lower or outer pipe at the joining point between the two pieces to make the junction watertight.

2 GENERAL REQUIREMENTS

2.1 Adjustable, Elevating, Tilting, and Pivoting Lavatory, Sink, and Shampoo Bowl Carrier Systems

The adjustable, elevating, tilting, and pivoting lavatory, sink, and shampoo bowl carrier system shall consist of a wall mounted or pedestal mounted carrier with a height adjustment and/or a lateral adjustment mechanism and/or pivot or tilt adjustment, a lavatory or sink that complies with the dimensional requirements of ICC/ANSI A117.1, a flexible waste system, or telescoping waste system, and a means to supply water to the fixture. The respective waste system shall

(a) provide drainage of the fixture

(*b*) protect the building from sewer gas
(*c*) be serviceable and accessible

2.2 Fixture Mounting System

The wall mounted or pedestal mounted adjustment mechanism shall provide the necessary means for mounting the lavatory, sink, or shampoo bowl over the manufacturer's intended range of travel, with an adjustable mechanism to position the fixture either vertically, laterally, vertically and laterally, or allow the fixture to pivot or tilt up and down.

2.3 Sink, Lavatory, or Shampoo Bowl Fixtures and Flexible Water Supply Connectors

The sink, lavatory, or shampoo bowl fixtures and flexible water supply connectors shall comply with the applicable product standard(s) regarding materials, manufacture, and installation. These include those listed in para. 1.3

(*a*) ANSI Z124.3
(*b*) ANSI Z124.6
(*c*) ASME A112.18.2/CSA B125.2
(*d*) ASME A112.18.6
(*e*) ASME A112.19.1M
(*f*) ASME A112.19.2
(*g*) ASME A112.19.3M
(*h*) ASME A112.19.4M
(*i*) ASME A119.19.9M

2.4 Flexible Waste System and Telescoping Tailpiece Waste System

The trap seal provided by the flexible waste system shall be a minimum of 2 in. (51 mm) in depth, when evaluated in accordance with para. 3.2. Materials used in the construction of the flexible waste system shall be either metallic, plastic, or elastomeric that comply with the requirements of para. 3.2 and ASME A112.18.2/CSA B125.2.

2.4.1 The telescoping tailpiece waste system shall have a minimum outside diameter of $1\frac{1}{2}$ in. (39 mm) for sink and shampoo bowls and $1\frac{1}{4}$ in. (32 mm) minimum for lavatory tailpieces. The standpipe may be constructed in either single or multiple stage models for different applications. All moving components shall be designed and constructed to seal with a double O-ring at each junction. The standpipe must always be installed in a vertical position.

2.4.2 Telescoping Tailpiece Waste System Linkage Material. Linkage materials that contain stainless steel cables shall comply with Fed Spec RR-W-410, and cable eyes shall comply with Mil Spec 20668.

2.4.3 Trap Seal of Flexible Hoses. PVC wastes that contain a flexible waste hose shall be factory solvent welded to the trap or trap adapter using PVC solvent cement complying with ASTM D 2564. The flexible hose shall be supported in such a manner that it is prevented from bending to form a second trap.

2.4.4 Pressure and Leakage Tests. The flexible waste system or a telescoping tailpiece waste system shall comply with the pressure and leakage requirements of ASME A112.18.2/CSA B125.2.

2.4.5 Flow Test. The flexible waste system or a telescoping tailpiece waste system shall comply with the flow rate requirements of ASME A112.18.2/CSA B125.2.

2.5 Flexible Water Supply Connectors

Flexible water supply connectors shall comply with ASME A112.18.6.

3 TESTING

3.1 Adjustable, Elevating, Tilting, and Pivoting Lavatory, Sink, and Shampoo Bowl Carrier Systems

3.1.1 Load Testing

3.1.1.1 Test Method for Mounting System. The mounting system shall be installed in accordance with the manufacturer's instructions. A load of 250 lb (113.4 kg) shall be applied on the top of the lavatory, sink, or shampoo bowl fixture rim for a period of 15 min, in both its highest and lowest positions. When lateral adjustments are provided, the test shall be conducted to apply the load of 250 lb (113.4 kg) to the carrier. After application of the required load, the assembly shall be inspected for damage. The device shall be operated through its full range of travel.

3.1.1.2 Performance Requirement. The assembly shall demonstrate no sign of damage during and after the application of the load. When the device is operated through its full range of travel, it shall function as it did prior to the load test.

3.1.2 Vertical, Pivotal, and Tilt Adjustment

3.1.2.1 Adjustment. The mounted adjustment mechanism shall provide adjustment for use as specified by the product manufacturer. For an adjustable position or elevating sink, lavatory, or shampoo bowl with specified pivotal and tilt adjustment, the mechanism shall provide a pivot or tilt adjustment of not less than 10 deg and not more than 20 deg. For an adjustable position or elevating sink, lavatory, or shampoo bowl with specified vertical adjustment, the mechanism shall provide vertical adjustment not less than 2 in. (51 mm) and not more than 30 in. (762 mm).

3.1.2.2 Test Method. The assembled system shall be operated throughout its full range of vertical adjustment and the travel shall be measured.

3.1.2.3 Performance Requirement. The carrier shall provide a vertical adjustment of not less than

2 in. (51 mm) and not more than 30 in. (762 mm), and a pivotal or tilted adjustment of not less than 10 deg and not more than 20 deg.

3.2 Flexible Waste System or Telescoping Tailpiece Waste System

3.2.1 Trap Seal

3.2.1.1 Test Method. The wall mounted or pedestal mounted adjustable or elevating lavatory, shampoo bowl, or sink carrier system and flexible waste system or a telescoping tailpiece waste system shall be installed in accordance with the manufacturer's instructions. The lavatory, sink, or shampoo bowl shall be positioned at its lowest position. Fill the trap with water until water flows from the outlet of the flexible waste system or telescoping tailpiece waste system. Measure the depth of the trap seal. After measuring the height difference caused by vertical adjustment, the measurement of the trap seal of the extremes in the lateral, pivoting, or tilting fixture movement shall also be measured. The lavatory, sink, or shampoo bowl shall then be raised to its highest position and the depth of seal shall again be measured.

3.2.1.2 Performance Requirement. The trap seal depth for the flexible waste system or the telescoping tailpiece waste system shall not be less than 2 in. (51 mm) at any position.

3.3 Aging Test for the Flexible Waste System

3.3.1 Test Method. Flexible drain hose shall be aged at atmospheric pressure and elevated temperature. Age a specimen at a temperature of 140°F ± 3.6°F (60°C ± 2°C) for 166 hr.

3.3.2 Performance Requirement. After the exposure, examine the test specimen for surface cracks under 2× magnification. Presence of any cracking shall be cause for failure. In addition, perform the Hydrostatic Pressure Test as described in ASME A112.18.2/CSA B125.2. The flexible waste system shall not leak during the test time period.

3.4 Cycle Test

3.4.1 Flexible Waste System Pivot and Tilt Cycle Test. The assembled joints in the flexible waste hose system shall be cycle tested. Install the flexible hose to simulate actual installation. Fix the rigid outlet fitting to which the hose is joined at a point 3 in. ± $\frac{1}{8}$ in. (76.2 mm ± 3.2 mm) from the inlet end. Attach the flexible hose to the cycling fixture at a point 12 in. ± $\frac{1}{8}$ in. (304.8 mm ± 3.2 mm) upstream of the rigid fitting attachment. One cycle shall consist of moving the flexible hose back and forth one time through 20 deg of pivoting or tilting. The 20 deg shall begin at 10 deg from the centerline of the outlet fitting and end 10 deg at the opposite side of the centerline. Cycle the hose 20,000 times at 70°F ± 5°F (21.1°C ± 2.8°C) at a minimum of six cycles per minute. At the conclusion of the 20,000 cycles, perform the pressure test as described in para. 2.4.4. The joint(s) shall not leak.

3.4.2 Flexible Waste System and Telescoping Tailpiece Waste System Vertical Cycle Test. Both assembled waste system assemblies shall be cycle tested. Install each respective waste system to simulate actual installation. Fix the bottom outlet fitting to which the waste system is joined at a point 7 in. ± $\frac{1}{8}$ in. (177.8 mm ± 3.2 mm) from the floor. Attach the top end of the waste system to the cycling fixture at a point 19 in. ± $\frac{1}{8}$ in. (482.6 mm ± 3.2 mm) above the rigid fitting attachment. One cycle shall consist of moving the waste system up and down one time through its maximum of vertical travel. The vertical travel shall begin at the fully closed position and extend towards the fully extended position. Cycle the waste system 20,000 times at 70°F ± 5°F (21.1°C ± 2.8°C) at a minimum of six cycles per minute. At the conclusion of the 20,000 cycles, perform the pressure test as described in para. 2.4.4. The joint(s) shall not leak.

4 MARKING AND INSTRUCTIONS

4.1 Marking

Each wall mounted or pedestal mounted adjustable, elevating, tilting, and pivoting lavatory, sink, and shampoo bowl carrier system shall be marked with the following:

(a) manufacturer's name or trademark permanently applied and visible after installation

(b) model number

4.2 Instructions

Installation and owner/user instructions shall be supplied with the system, including minimum requirements for structural support for wall mounted systems.

A112 ASME STANDARDS RELATED TO PLUMBING

Air Gaps in Plumbing Systems (For Plumbing Fixtures and Water-Connected Receptors) A112.1.2-2004
Air Gap Fittings for Use With Plumbing Fixtures, Appliances, and Appurtenances A112.1.3-2000 (R2005)
Performance Standard and Installation Procedures for Stainless Steel
Drainage Systems for Sanitary, Storm, and Chemical Applications,
Above and Below Ground A112.3.1-1993
Macerating Toilet Systems and Related Components A112.3.4-2000 (R2004)
Water Heater Relief Valve Drain Tubes A112.4.1-1993 (R2002)
Water Closet Personal Hygiene Devices A112.4.2-2003
Plastic Fittings for Connecting Water Closets to the Sanitary Drainage System A112.4.3-1999 (R2004)
Point of Use and Branch Water Submetering Systems A112.4.7-2002
Manually Operated, Quarter-Turn Shutoff Valves for Use in Plumbing Systems A112.4.14-2004
Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use A112.6.1M-1997 (R2002)
Framing-Affixed Supports for Off-the-Floor Water Closets With
Concealed Tanks A112.6.2-2000 (R2004)
Floor and Trench Drains A112.6.3-2001
Roof, Deck, and Balcony Drains A112.6.4-2003
Enameled and Epoxy Coated Cast Iron and PVC Plastic Sanitary Floor Sinks A112.6.7-2001
Siphonic Roof Drains A112.6.9-2005
Backwater Valves A112.14.1-2003
Grease Interceptors A112.14.3-2000 (R2004)
Grease Removal Devices A112.14.4-2001
FOG (Fats, Oils, and Greases) Disposal Systems A112.14.6-2006
Plumbing Fixture Fittings A112.18.1-2003 (R2005)
Plumbing Fixture Waste Fittings A112.18.2-2002 (R2005)
Performance Requirements for Backflow Protection Devices
and Systems in Plumbing Fixture Fittings A112.18.3-2002
Flexible Water Connectors A112.18.6-2003
Deck Mounted Bath/Shower Transfer Valves With Integral
Backflow Protection A112.18.7-1999 (R2004)
Enameled Cast Iron Plumbing Fixtures A112.19.1M-1994 (R2004)
Vitreous China Plumbing Fixtures and Hydraulic Requirements for
Water Closets and Urinals A112.19.2-2003
Stainless Steel Plumbing Fixtures (Designed for Residential Use) A112.19.3-2000
Porcelain Enameled Formed Steel Plumbing Fixtures A112.19.4M-1994 (R2004)
Trim for Water-Closet Bowls, Tanks, and Urinals A112.19.5-2005
Hydraulic Performance Requirements for Water Closets and Urinals A112.19.6-1995
Hydromassage Bathtub Appliances A112.19.7-2006
Suction Fittings for Use in Swimming Pools, Wading Pools, Spas,
Hot Tubs, and Whirlpool Bathtub Appliances A112.19.8M-1987 (R1996)
Non-Vitreous Ceramic Plumbing Fixtures A112.19.9M-1991 (R2002)
Dual Flush Devices for Water Closets A112.19.10-2003
Wall Mounted, Pedestal Mounted, Adjustable, Elevating, Tilting, and Pivoting
Lavatory, Sink, and Shampoo Bowl Carrier Systems and Drain Waste Systems A112.19.12-2006
Electrohydraulic Water Closets A112.19.13-2001
Six-Liter Water Closets Equipped With a Dual Flushing Device A112.19.14-2001
Bathtubs/Whirlpool Bathtubs With Pressure Sealed Doors A112.19.15-2005
Manufactured Safety Vacuum Release Systems (SVRS) for Residential and
Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems A112.19.17-2002
Qualification of Installers of High Purity Piping Systems A112.20.1-2004
Qualification of Installers of Firestop Systems and Devices for Piping Systems A112.20.2-2004
Floor Drains A112.21.1M-1991 (R1998)
Roof Drains A112.21.2M-1983
Hydrants for Utility and Maintenance Use A112.21.3M-1985 (R2001)
Cleanouts A112.36.2M-1991 (R2002)

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