ASME A112.19.19-2016

[Revision of ASME A112.19.19-2006 (R2011)]

Vitreous China Nonwater Urinals

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Two Park Avenue • New York, NY • 10016 USA

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The American Society of Mechanical Engineers
Two Park Avenue, New York, NY 10016-5990

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FOREWORD

Nonwater urinals were introduced into the United States plumbing fixture marketplace in 1991. A national standard was developed by the International Association of Plumbing and Mechanical Officials (IAPMO) for the fiberglass version of the product, which was the only version available at that time. That standard, ANSI Z124.9, Plastic Urinal Fixtures, remains as a national standard.

Later in the decade, another manufacturer introduced a nonwater urinal of vitreous china manufacture. No ANSI standard existed for that product. In 2002, Project Initiation Request (PIR) 02-22 was submitted to the ASME A112 Committee requesting that a standard be developed for the vitreous china product. On July 29, 2003, at its meeting in San Diego, California, the A112 Standards Committee formed a new Project Team 19.19 to address the request in PIR 02-22. The Project Team immediately began its work on the standard, which was created at that time and reaffirmed in 2006 and 2011. The current 2016 action revises the standard to add an option for a drain-cleansing feature.

This Standard is similar in many respects to that portion of ANSI Z124.9 for plastic nonwater urinals. However, considerable discussion was given to incorporating a test for odors that would be more objective than that contained within the Z124.9 standard. As a result, the test method for odors that became a part of this Standard relied upon instrumentation to detect odors, if any, rather than the human nose.

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

This Standard was approved as an American National Standard on August 31, 2016.

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Standardization of Plumbing Materials and Equipment

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General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, A112 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

Proposing Revisions. Revisions are made periodically to the 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 Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee Web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

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

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of the A112 Standards Committee at the above address. 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 in one or two words.

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. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.

Proposed Reply(ies): Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.

Background Information: Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate 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 regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the A112 Standards Committee. Future Committee meeting dates and locations can be found on the Committee Page at go.asme.org/A112committee.

VITREOUS CHINA NONWATER URINALS

1 GENERAL

1.1 Scope

This Standard establishes requirements and test methods pertaining to materials, significant dimensions, and functional performance for vitreous china nonwater urinals, including those with an optional drain-cleansing feature as defined in this Standard. The sanitary performance requirements and test procedures apply to all types of nonwater urinals that discharge into gravity waste systems in permanent buildings and structures independent of occupancy.

1.2 Units of Measure

Where 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.

1.3 References

The following documents form a part of this Standard to the extent specified herein. Unless otherwise specified, the latest edition shall apply:

ANSI/ICC A117.1, Standard Specification for Accessible and Usable Buildings and Facilities
Publisher: International Code Council (ICC), 500 New Jersey Avenue, NW, Washington, DC 20001 (www.iccsafe.org)

ASME A112.1.3, Air Gap Fitting for Use with Plumbing Fixtures
ASME A112.6.1M, Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use
ASME A112.6.2, Framing-Affixed Supports for Off-the-Floor Water Closets With Concealed Tanks
ASME A112.19.2/CSA B45.1, Ceramic Plumbing Fixtures
ASME A112.19.5/CSA B45.15, Flush Valves and Spuds for Water Closets, Urinals, and Tanks
Publisher: The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990; Order Department: 150 Clove Road, Little Falls, NJ 07424-2139 (www.asme.org)

ASSE 1001, Performance Requirements for Atmospheric Vacuum Breakers
ASSE 1011, Performance Requirements for Hose Connection Vacuum Breakers
ASSE 1018, Performance Requirements for Trap Seal Primer Valves — Potable Water Supplied
ASSE 1044, Performance Requirements for Trap Seal Primer — Drainage Types and Electric Design Types
ASSE 1052, Performance Requirements for Hose Connection Backflow Preventers
ASSE 1056, Performance Requirements for Spill Resistant Vacuum Breakers
Publisher: The American Society of Safety Engineers (ASSE), 520 N. Northwest Hwy, Park Ridge, IL 60068 (www.asse.org)

CSA B64.1.4, Vacuum breaker, air space type
Publisher: Canadian Standards Association (CSA), 178 Rexdale Boulevard, Toronto, Ontario M9W 1R3, Canada (www.csagroup.org)

UL 969, Marking and Labeling Systems
Publisher: Underwriters Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062-2096; Order Department: Comm 2000, 151 Eastern Avenue, Bensenville, IL 60106 (www.ul.com)

1.4 Definitions

blister: a raised portion of the surface not greater than $\frac{1}{8}$ in. (3 mm) in maximum dimension.

blister, large: a raised portion of the surface greater than $\frac{1}{8}$ in. (3 mm) in maximum dimension.

bubble: a raised portion of the surface or a sand speck smaller than $\frac{1}{32}$ in. (1 mm) in maximum dimension.

crack: a fracture in either the glaze or the body, but neither a dunt nor a craze.

craze: fine cracks in the glaze.

discoloration: a colored spot over $\frac{1}{4}$ in. (6 mm) in maximum dimension or a sufficient number of specks or spots to give the effect of a change in color.

drain-cleansing action: the process of introducing a volume of water, in the form of a stream or spray, to rinse drain pipes and assist in carrying residue downstream through the drainage system. The feature is not required for the nonwater urinal to maintain the required trap seal.

dull or eggshell finish: dead or flat finish, undeveloped glaze, or a semi-glazed finish with numerous very fine pinholes or slightly matted in appearance, not glossy; not to be confused with a satin or matte finish used for decorative purposes.

dunt: a hairline fracture extending through the body and caused by strains set up in the process of manufacture.

exposed body: unglazed portion 1/16 in. (2 mm) or more in maximum dimension.

finish: texture and condition of surface other than color.

fire check: fine shallow crack in the body not covered with glaze (when covered with glaze so as to be easily cleaned, it is not detrimental).

first quality: first-class ware in conformance with the grade limitations and other requirements of this Standard, shall also be permitted to be called grade "A" ware.

fixture: the china piece only, without trim.

flood level: the portion of a plumbing fixture that will spill over when the fixture drain is shut or constricted.

glaze: the smooth, glass-like ceramic coating on a vitreous china surface that imparts impermeability and covers the body.

nonwater consuming urinal: a plumbing fixture that is designed to receive and convey only liquid waste through a trap seal into the gravity drainage system, without the use of water for such function.

permanent markings: markings that are fired, cast, sandblasted, etched, stamped, or otherwise not removable, except by excessive work or extraordinary means.

pinhole: a small hole in the glazed surface up to and including 1/16 in. (2 mm) in maximum dimension.

pit: a hole in the glazed surface larger than 1/16 in. (2 mm) in diameter.

polishing mark: a spot not larger than 3/8 in. (10 mm) in maximum dimension where some minor blemish has been removed by polishing.

pottery square: a square 2 in. (50 mm) on each side. For grading purposes, it shall be a 2-in. (50-mm) square hole cut in a small sheet of any flexible material, such as rubber or paper, for convenience in sliding over irregular surfaces to determine segregation.

rim: the unobstructed open edge of a fixture.

roughing-in measurement: dimensions from finished wall or floor to center of waste or supply opening or mounting holes.

sanitary: for the purposes of this Standard, indicates an aesthetic condition of cleanliness, not microbiologically clean.

segregation: more than the allowable number of defects in a pottery square.

speck: an area of contrasting color less than 1/32 in. (1 mm) in maximum dimension. Specks less than 1/100 in. (0.3 mm) in maximum dimension, unless in sufficient number to form a discoloration, are not counted.

spot: an area of contrasting color 1/32 in. (1 mm) up to and including 1/8 in. (3 mm) in maximum dimension.

spot, large: an area of contrasting color greater than 1/8 in. (3 mm) in maximum dimension.

trap: a fitting, device, or integral fixture portion so designed and constructed as to provide a liquid seal that will prevent the back-passage of sewer gas without materially affecting the flow of sewage or wastewater through it.

trap dip: the highest point of the opening from the well into the trapway.

trap-seal depth: the vertical depth of liquid between the highest part of the lower interior surface of a trap and the trap weir.

trim: parts other than china regularly supplied with a fixture, e.g., wall hangers. Trim shall not include fittings (see ASME A112.19.5/CSA B45.15).

urinal: a plumbing fixture that receives only liquid body wastes and conveys the waste through a trap seal into a gravity drainage system.

urinal with drain-cleansing action: a nonwater urinal that automatically performs a drain-cleansing action after a predetermined amount of time or usage. Such a urinal can function and perform waste extraction without the drain-cleansing action.

visible after installation: any surface that remains visible after the fixture has been installed, not necessarily from a normal standing position.

visible surface: the surface that is readily visible to an observer in a normal standing position after installation of the fixture.

vitreous china: as applied to plumbing fixtures (≤ 0.5% absorption) compounded of ceramic materials fired at high temperature to form a nonporous body with exposed surfaces coated with ceramic glaze fused to the body.

warpage: a defect in a fixture resulting in a concave or convex gap between the fixture and the adjacent wall or floor.

wavy finish: a defect in the finish having the appearance of numerous runs in the glaze, irregular or mottled.

well: a pocket opened at the top, formed inside a urinal bowl at the entrance to the trap.

2 VITREOUS CHINA REQUIREMENTS

2.1 Absorption

The average absorption of the ceramic test samples shall not exceed one-half of 1% (0.5%) when tested in accordance with ASME A112.19.2/CSA B45.1, para. 6.1.

2.2 Crazing

No crazing shall be permitted when tested in accordance with ASME A112.19.2/CSA B45.1, para. 6.2.

Table 1 Maximum Allowable Defects for Vitreous China Nonwater-Consuming Urinals

Defect	Maximum Permitted
Warpage	Not noticeably warped
Exposed body	None
Wavy finish	Not more than 4 in.^{2} (2 600 mm^2)
Pits, blisters, and pinholes	A total of not over 5
Bubbles, specks, and spots	Not over 5 in one pottery square, a total of not over 10

2.3 Thickness

Vitreous china shall not be less than $\frac{1}{4}$ in. (6 mm) thick at any point, exclusive of glaze.

2.4 Warpage

Vitreous china fixtures shall meet the warpage requirements listed in Table 1 when tested in accordance with ASME A112.19.2/CSA B45.1, para. 6.4.

2.5 Glazed Surfaces

The glaze shall be thoroughly fused to the fixture body. All exposed surfaces shall be glazed, except those surfaces that are designed to come into contact with walls or floors, and where the fixture is supported in the kiln, as long as such areas are not visible surfaces.

2.6 Finish

All vitreous china fixtures shall be free from defects to the extent specified in Table 1, as applicable, when evaluated in accordance with para. 5.4.

3 GENERAL REQUIREMENTS

3.1 Alternate Material Components

When alternate materials are used as components within a nonwater urinal, the assembly shall conform to applicable material standards for the plumbing application. They shall satisfy this Standard regarding quality, strength, effectiveness, durability, and safety. They shall also be repairable or replaceable within the vitreous china fixture.

3.2 Alternate Materials in Trapways

Where alternate materials are used in a nonwater urinal trapway, the trapway shall comply with the requirements of the auger test specified in para. 5.5.

3.3 Nonstandard Outlet Configurations — Joint Seal Test

When an outlet configuration requires a connection other than a urinal flange, this connection shall not leak when tested in accordance with para. 5.7 and shall be of a design that allows for field repair or replacement.

3.4 Load Tests for Wall-Mounted Fixtures

3.4.1 Load Test for Urinals. All wall-mounted, nonwater urinals shall withstand a load of 50 lbf (0.22 kN) when tested in accordance with para. 5.6.

3.4.2 Off-the-Floor Fixture Supports. Fixture supports, when required, shall comply with ASME A112.6.1M or ASME A112.6.2.

3.5 Tolerances and Dimensions

For tolerance and dimension information, reference ASME A112.19.2/CSA B45.1, para. 4.1.2.

3.6 Connection to the Drainage System

Nonwater urinals shall have an integral or removable trap with a liquid seal and an outlet assembly for connection to the drainage system. The outlet spud size shall be a minimum of $1\frac{1}{2}$ in. (38 mm) in diameter.

3.7 Urinal Dimensions

Minimum urinal dimensions shall be as specified in Table 2.

4 MARKINGS AND INSTALLATION INSTRUCTIONS

4.1 Permanent Markings on Product

Each fixture meeting this Standard shall be permanently marked as required by this section. Where the fixture is comprised of two or more components, each fixture component that is visible after installation of the fixture shall be permanently marked as required by this section. Acceptable means of applying permanent markings shall include fired on, etching, sand blasting, stamping with a permanent (nonwater soluble) ink, and cast-in markings. Adhesive labels that comply with UL 969 shall also be considered permanent. The exposure conditions contained in para. 7.1 of UL 969 shall apply, along with the additional exposure to the detergent test specified in Table 7.4 of UL 969.

4.1.1 Manufacturer's Name. The manufacturer's name or registered trademark or, in the case of private labeling, the name of the customer for whom the fixture was manufactured shall be applied so as to be legible, readily identified, and located so as to be visible after installation.

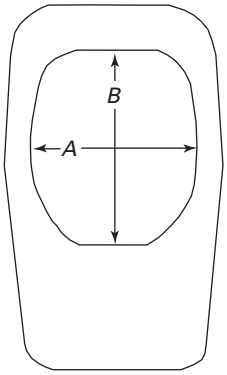
4.1.2 Model Number. The model number of the nonwater urinal shall be applied so as to be legible.

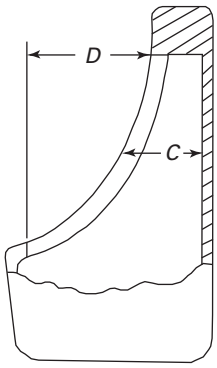
4.1.3 Date of Manufacture. The date of manufacture (casting date) shall be applied so as to be legible.

4.2 Marking Requirements for Product Packaging

All packaging for vitreous china nonwater urinals shall be marked with the manufacturer's name or registered trademark or, in the case of private labeling, the

Table 2 Minimum Urinal Dimensions





Type	Interior Width, *A*, in. (mm)	Interior Height, *B*, in. (mm)	Interior Depth, *C*, in. (mm)		Projection, *D*, in. (mm)	
			Without Shields	With Shields	Reg.	Ext. Lip
Wall-hanging	8½ (216)	7½ (191)	3 (76)	7 (178)	6 (152)	8 (203)
Stall	12 (305)	32 (813)	3 (76)	7 (178)	6 (152)	8 (203)

GENERAL NOTE: *A* and *C* shall be measured halfway between the top and bottom of the interior opening.

name of the customer for whom the fixture was manufactured and the model number of the fixture.

4.3 Installation Instructions

The manufacturer shall provide installation instructions with the nonwater urinals. Installation instructions shall include care and maintenance information.

4.4 Repair Parts

The manufacturer shall supply information to enable the end user to specify and obtain repair parts for normal maintenance.

5 VITREOUS CHINA AND ALTERNATE MATERIALS TESTS

5.1 Absorption (Boiling) Test

For absorption (boiling) test criteria, reference ASME A112.19.2/CSA B45.1, para. 6.1.

5.2 Crazing Test

For crazing test criteria, reference ASME A112.19.2/CSA B45.1, para. 6.2.

5.3 Warpage Test

For warpage test criteria, reference ASME A112.19.2/CSA B45.1, para. 6.4 (see also para. 2.4).

5.4 Evaluation of Surface Finish

For surface finish criteria, reference ASME A112.19.2/CSA B45.1, para. 6.3 (see also para. 2.6).

5.5 Auger Test

With the cartridge/trap removed, a conventional manual type urinal auger shall be inserted a minimum of 24 in. (610 mm) into the well and through the outlet of the urinal. The auger shall be manually rotated five times for each test cycle. A total of 100 cycles shall be performed by removing, reinserting, and rotating the auger five times for each cycle.

After 100 cycles, the nonwater urinal shall be tested for leakage by pouring water through the trapway, after removal of the auger and replacing the trap. There shall be no water leakage, other than trap outlet spillage.

5.6 Load Tests for Wall-Mounted Fixtures

All wall-mounted fixtures to be tested shall be firmly affixed to a solid test stand in accordance with the manufacturer's installation instructions. The supporting devices shall remain exposed for the duration of this testing for examination. If the manufacturer provides a support device with the fixture, that device shall be employed for this test.

5.6.1 Wall-Mounted Urinals. Urinals shall withstand an applied vertical load of a minimum of 50 lbf (0.22 kN) on the top surface on the front of the fixture lip. In all cases, the test fixture shall withstand the full test load for 10 min without failure or any visible structural damage.

5.7 Joint Seal Test

The joint between the nonstandard outlet configuration and drainage system shall be made in accordance with the manufacturer's instructions and subjected to a hydrostatic pressure of 5.0 psig ± 0.5 psig