

**ASME A112.19.16-2006**

# **Terrazzo Plumbing Fixtures**

**AN AMERICAN NATIONAL STANDARD**



**The American Society of  
Mechanical Engineers**

Copyright © 2001 by the American Society of Mechanical Engineers.  
No reproduction may be made of this material without written consent of ASME.



**ASME A112.19.16-2006**

# **Terrazzo Plumbing Fixtures**

**AN AMERICAN NATIONAL STANDARD**



**The American Society of  
Mechanical Engineers**

Three Park Avenue • New York, NY 10016

Copyright © 2001 by the American Society of Mechanical Engineers.  
No reproduction may be made of this material without written consent of ASME.



Date of Issuance: November 17, 2006

This Standard will be revised when the Society approves the issuance of a new edition. There will be no addenda issued to this edition.

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.

ASME is the registered trademark of The American Society of Mechanical Engineers.

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The Standards Committee that approved the code or standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment that provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not “approve,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor assume any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

No part of this document may be reproduced in any form,  
in an electronic retrieval system or otherwise,  
without the prior written permission of the publisher.

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

Copyright © 2006 by  
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
All rights reserved  
Printed in U.S.A.



# CONTENTS

Foreword .....	iv
Committee Roster .....	v
Correspondence With the A112 Committee .....	vi
<b>1 General.....</b>	<b>1</b>
<b>2 General Requirements .....</b>	<b>1</b>
<b>3 Testing .....</b>	<b>2</b>
<b>4 Marking and Identification.....</b>	<b>2</b>



# FOREWORD

In 1998, the International Association of Plumbing and Mechanical Officials (IAPMO) approached ASME for the development of a standard for terrazzo plumbing products. The ASME A112 Standards Committee agreed there was a need to develop an American National Standard for these products and assembled a project team to begin the process of developing a new standard. The IAPMO Guide Criteria (IGC) was used as a starting point.

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

This Standard was approved as an American National Standard on August 23, 2006.





# ASME A112 COMMITTEE

## Standardization of Plumbing Materials and Equipment

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

### STANDARDS COMMITTEE OFFICERS

**D. W. Viola**, *Chair*  
**S. A. Remedios**, *Vice Chair*  
**C. J. Gomez**, *Secretary*

### STANDARDS COMMITTEE PERSONNEL

<b>R. H. Ackroyd</b> , Rand Engineering	<b>M. Klimboff</b> , Consultant
<b>J. A. Ballanco</b> , JB Engineering and Code Consulting	<b>M. T. Kobel</b> , IAPMO
<b>J. Bouwer</b> , Sanitary for All Ltd.	<b>N. M. Kummerlen</b> , Moen, Inc.
<b>M. N. Burgess</b> , Burgess Group, Inc.	<b>L. A. Mercer</b> , <i>Alternate</i> , Moen, Inc.
<b>S. L. Cavanaugh</b> , Consultant	<b>J. W. Lauer</b> , Sloan Valve Co.
<b>A. Ciechanowski</b> , NSF International	<b>R. M. Martin</b> , California Energy Commission
<b>A. Cohen</b> , Arthur Cohen and Associates	<b>P. W. Meikle</b> , Consultant
<b>P. V. DeMarco</b> , American Standard, Inc.	<b>S. Rawalpindiwala</b> , Kohler Co.
<b>N. Covino</b> , <i>Alternate</i> , American Standard, Inc.	<b>J. A. Sargent</b> , <i>Alternate</i> , Kohler Co.
<b>G. S. Duren</b> , Code Compliance, Inc.	<b>S. A. Remedios</b> , Delta Faucet Co.
<b>R. Emmerson</b> , Consultant	<b>G. L. Simmons</b> , Charlotte Pipe and Foundry
<b>L. S. Galowin</b> , Consultant	<b>L. M. Simnick</b> , ICC International
<b>C. J. Gomez</b> , The American Society of Mechanical Engineers	<b>W. M. Smith</b> , Jay R. Smith Manufacturing Co.
<b>R. I. Greenwald</b> , Sunroc Corp.	<b>D. W. Viola</b> , Plumbing Manufacturers Institute
<b>E. Ho</b> , IAPMO	<b>R. E. White</b> , Consultant
<b>D. E. Holloway</b> , SGS U.S. Testing Co.	<b>W. C. Whitehead</b> , Plumbing and Drainage Institute

### PROJECT TEAM 19.16 — TERRAZZO PLUMBING FIXTURES

<b>K. Fromme</b> , <i>Project Team Leader</i> , Bradley Corp.	<b>J. Murray</b> , SGS U.S. Testing Co.
<b>M. Klimboff</b> , Consultant	<b>S. Rawalpindiwala</b> , Kohler Co.
<b>M. T. Kobel</b> , IAPMO	<b>D. W. Viola</b> , Plumbing Manufacturers Institute



# CORRESPONDENCE WITH THE A112 COMMITTEE

**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, and attending Committee meetings. Correspondence should be addressed to:

Secretary, A112 Standards Committee  
The American Society of Mechanical Engineers  
Three Park Avenue  
New York, NY 10016-5990

**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 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 A112 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.

The request for 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 that 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.





# TERRAZZO PLUMBING FIXTURES

## 1 GENERAL

### 1.1 Scope

This Standard establishes the minimum requirements for terrazzo materials that are used to manufacture plumbing fixtures for general use. It includes material, structural and physical test requirements, and marking and identification of fixtures complying with this Standard.

The provisions of this Standard are not intended to prevent the use of any alternate design that meets or exceeds the intent of this Standard.

### 1.2 Units of Measurement

Values are stated in U.S. Customary units and in 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.

ASME A112.18.2/CSA B125.2, Plumbing Fixture Waste Fittings

Publishers: The American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990; Order Department: 22 Law Drive, P.O. Box 2300, Fairfield, NJ 07007-2300, and Canadian Standards Association (CSA), 5060 Spectrum Way, Mississauga, Ontario, Canada L4W 5N6

ASTM C 150, Standard Specifications for Portland Cement

ASTM F 409, Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings

ASTM F 462, Slip Resisting Bathing Facilities

Publisher: American Society of Testing and Materials (ASTM International), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959

CSA B45 Series, Plumbing Fixtures

CSA B125.3, Plumbing Fittings

Publisher: Canadian Standards Association (CSA), 5060 Spectrum Way, Mississauga, Ontario, Canada L4W 5N6

IAPMO/ANSI Z124.1.2, Plastic Bathtub and Shower Units

IAPMO/ANSI Z124.3, Plastic Lavatories

IAPMO/ANSI Z124.6, Plastic Sinks

Publisher: International Association of Plumbing and Mechanical Officials (IAPMO), 20001 East Walnut Drive South, Walnut, CA 91789-2825

UL 969, Marking and Labeling Systems

Publisher: Underwriters Laboratories (UL), 333 Pfingsten Road, Northbrook, IL 60062-2096

## 2 GENERAL REQUIREMENTS

### 2.1 Material

**2.1.1 Terrazzo.** The cast-stone terrazzo composition shall be composed of fine and coarse mineral aggregate and Portland cement or other suitable binder. The color of the aggregate and binder shall be such mix to produce the desired color.

**2.1.2 Fine Aggregate.** Fine aggregate shall be marble chips, sand, stone, slag screenings, or other inert material with similar characteristics, and shall be well graded and pass a  $\frac{1}{4}$  in. (6.4 mm) screen.

**2.1.3 Coarse Aggregate.** Coarse aggregate shall be marble chips or other inert material with similar characteristics, and shall pass a  $\frac{3}{8}$  in. (9.5 mm) screen and retained on a  $\frac{1}{4}$  in. (6.4 mm) screen.

**2.1.4 Portland Cement.** The Portland cement used in the mix shall comply with ASTM C 150.

**2.1.5 Suitable Binder.** Other suitable binders must meet the performance requirements of this Standard.

**2.1.6 Color.** Cast terrazzo plumbing fixtures shall be mottled white, gray, or other color at the manufacturer or consumer's option.

**2.1.7 Finish.** All surface voids shall be filled and polished or troweled to match adjoining surfaces. Exposed surfaces visible to user shall be even, uniform and smooth, without pits or air holes, and free from all loose aggregate chips. After grinding, the surface shall be washed, cleaned, and sealed over the exposed surface of the product. All surfaces exposed to water during normal usage shall be sealed.

### 2.2 Construction

**2.2.1 Shower Receptors and Bathtubs.** Terrazzo shower receptors and bathtubs shall be one-piece molded units. Shower bases intended for installation





against a vertical surface (wall) shall incorporate a raised flange not less than 1 in. (26 mm) above the rim at any point. The flange shall be integral with the shower base. The floor shall slope towards the drain a minimum of  $\frac{1}{4}$  in./ft (21 mm/m).

**2.2.2 Sinks.** Sinks shall be one piece-molded units. The bottom shall slope toward the drain. Waste fitting openings shall be sized to accommodate standard waste fittings unless the waste outlet fitting is manufacturer-supplied.

**2.2.3 Service Basin.** Terrazzo service basins shall be one-piece molded units. The floor shall slope towards the drain. A drain fitting for inside caulking to a 3 in. (76 mm) pipe shall be embedded into the fixture.

**2.2.4 Wash Fountains and Lavatory Systems.** Wash fountain and lavatory system bowls shall be one-piece molded units with the inside bottom of the bowl sloping towards the drain so as to provide continuous draining during use. All such bowls shall have a waste-fitting opening, the center of which is at the lowest point of the bowl. Waste-fitting openings will be sized to accommodate standard waste fittings unless the waste-outlet fitting is manufacturer-supplied. Bowls shall have a minimum capacity of  $2\frac{1}{4}$  gal (8.5 L) per user. Circular and nonlinear units shall provide 20 in. (508 mm) of rim per user. Linear units shall provide 24 in. (610 mm) center-to-center distance per user section.

## 2.3 Warpage

The maximum allowable warpage for all terrazzo plumbing fixtures as measured at top of the threshold and curbs shall be  $\frac{5}{16}$  in./ft (25 mm/m).

## 2.4 Drains and Strainers

Drains and strainers shall meet the requirements of ASME A112.18.2/CSA B125.2, or ASTM F 409.

## 3 TESTING

### 3.1 Structural Integrity

**3.1.1 Test Methods.** Point impact and load tests on bathtubs, shower receptors, wash fountains, lavatories/lavatory systems, and sinks shall comply with the test methods in IAPMO/ANSI Z124.1.2, IAPMO/ANSI

Z124.3, and IAPMO/ANSI Z124.6, respectively, or CSA B45 series.

**3.1.2 Performance Requirements.** The test samples that do not comply with the performance requirements as set forth in the applicable ANSI or CSA standard shall be cause for rejection of the product.

### 3.2 Slip Resistance

**3.2.1 Test Method.** The surfaces of the bathing area of the shower receptor shall be slip resistant and shall comply with ASTM F 462.

**3.2.2 Performance Requirements.** The test samples that do not comply with the performance requirements as set forth in the ASTM standard shall be cause for rejection of the product.

### 3.3 Surface

**3.3.1 Test Method.** Terrazzo bathtubs, shower receptors, wash fountains, and lavatories/lavatory systems shall meet the requirements of IAPMO/ANSI Z124.1.2, IAPMO/ANSI Z124.3, IAPMO/ANSI Z124.6, or CSA B45.5 for stain resistance, chemical resistance, wear and cleanability, and thermal shock resistance.

**3.3.2 Performance Requirements.** The test samples that do not comply with the performance requirements as set forth in the applicable ANSI or CSA standard shall be cause for rejection of the product.

## 4 MARKING AND IDENTIFICATION

Each fixture shall be permanently marked with the manufacturer's name or trademark. Acceptable means of applying permanent marking shall include fired-on, etching, stamping with permanent (nonwater-soluble) ink, and cast-in markings. Such marking shall be located where it can be seen after installation. Adhesive labels that comply with UL 969 shall also be considered permanent when installed on areas of the fixture that are not normally submerged in water. The exposure conditions for labels 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.

Each fixture shall be supplied with written care and maintenance instructions, including sealing recommendations and installation instructions.

# ASME A112.19.16-2006

ISBN 0-7918-3026-8



9 780791 830260



J17806

Copyright © 2001 by the American Society of Mechanical Engineers.  
No reproduction may be made of this material without written consent of ASME.

