

ASME A112.18.9-2011

Protectors/ Insulators for Exposed Waste and Supplies on Accessible Fixtures

AN AMERICAN NATIONAL STANDARD



The American Society of
Mechanical Engineers

INTENTIONALLY LEFT BLANK

ASME A112.18.9-2011

Protectors/ Insulators for Exposed Waste and Supplies on Accessible Fixtures

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

Three Park Avenue • New York, NY • 10016 USA

Date of Issuance: September 30, 2011

This Standard will be revised when the Society approves the issuance of a new edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Periodically certain actions of the ASME A112 Committee may be published as Cases. Cases and interpretations are published on the ASME Web site under the Committee Pages at <http://cstools.asme.org> 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 assumes 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 © 2011 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
1 General	1
2 Definitions	1
3 References	1
4 Design Requirements	1
5 Performance Requirements and Test Methods	2
6 Marking and Identification	2
Figure	
1 Boiler Test Tank	3

FOREWORD

The American Society of Mechanical Engineers has prepared this Standard for the purpose of establishing material and performance specifications and use for protectors/insulators used on exposed waste and supplies of accessible fixtures installed in public/commercial and residential/private buildings. It is intended to serve as a guide for producers, distributors, architects, engineers, contractors, installers, inspectors, and users to promote understanding regarding the design, materials, applications, and installation of the product that conform to this Standard.

With an aging population and the increase in the need for accessible fixtures in both the public and private sectors, it is important that products used in this environment meet minimum consensus standard requirements. More and more occupancies are required to meet the ICC/ANSI A117.1, Standard for Accessible and Usable Buildings and Facilities for Persons With Physical Disabilities, or ADA requirements. In addition, many persons are voluntarily demanding their occupancies be designed to be accessible as they age. Protectors/insulators covered under this Standard are a critical part of ensuring that accessible fixtures are meeting these standards and are adding an element of health and safety to their use. The minimum requirements contained in this Standard will help ensure that these products meet the necessary performance and safety requirements and create a vehicle for independent testing and certification by third-party agencies. In addition, it will eliminate confusion in the marketplace and help with uniformity in code enforcement. It was the reality of all these facts that created the need to develop the A112.18.9 Standard.

This Standard was approved as an American National Standard by ANSI on August 25, 2011.

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*
F. Constantino, *Secretary*

STANDARDS COMMITTEE PERSONNEL

R. H. Ackroyd , Rand Engineering	G. W. Harrison , Wayne Harrison Consulting
S. R. Aridi , NSF International	S. D. Hazzard , American Society of Sanitary Engineering
A. Ciechanowski , <i>Alternate</i> , NSF International	J. M. Koeller , Koeller and Co.
J. A. Ballanco , JB Engineering & Code Consulting	N. M. Kummerlen , Consultant
J. Bouwer , SFA Saniflo, Inc.	C. J. Lagan , American Standard
M. N. Burgess , Milton N. Burgess, P.E.	J. W. Lauer , Sloan Valve Co.
C. Caruana , CSA International	J. C. Watson , <i>Alternate</i> , Sloan Valve Co.
N. E. Dickey , <i>Alternate</i> , CSA International	L. A. Mercer , Moen, Inc.
S. L. Cavanaugh , Consultant	J. E. Bertrand , <i>Alternate</i> , Moen, Inc.
W. E. Chapin , Cash Acme	T. C. Pitcherello , New Jersey Department of Community Affairs
F. Constantino , The American Society of Mechanical Engineers	S. Rawalpindiwala , Kohler Co.
P. V. DeMarco , International Association of Plumbing and Mechanical Officials	S. A. Remedios , Delta Faucet Co.
D. E. Holloway , <i>Alternate</i> , International Association of Plumbing and Mechanical Officials	C. Trendelman , <i>Alternate</i> , Delta Faucet Co.
G. S. Duren , Code Compliance, Inc.	G. L. Simmons , Charlotte Pipe and Foundry
R. Emmerson , Consultant	W. B. Morris , <i>Alternate</i> , Charlotte Pipe and Foundry
K. Fromme , Bradley Corp.	W. M. Smith , Jay R. Smith Manufacturing Co.
T. R. Eberhardy , <i>Alternate</i> , Bradley Corp.	M. Weiss , <i>Alternate</i> , Weiss Research
L. S. Galowin , Consultant	D. W. Viola , International Association of Plumbing and Mechanical Officials
R. L. George , Ron George Design & Consulting	M. Campos , <i>Alternate</i> , International Association of Plumbing and Mechanical Officials
R. I. Greenwald , Consultant	W. C. Whitehead , Whitehead Consulting Services

A112 PROJECT TEAM 18.9 — BARRIER-FREE PROTECTION FOR TRAPS AND SUPPLIES

S. L. Cavanaugh , <i>Project Team Leader</i> , Consultant	K. Fromme , Bradley Corp.
H. Ahern , Plumberex	T. R. Eberhardy , <i>Alternate</i> , Bradley Corp.
J. A. Ballanco , JB Engineering & Code Consulting	R. L. George , Ron George Design & Consulting
M. Campos , International Association of Plumbing and Mechanical Officials	G. W. Harrison , Wayne Harrison Consulting
G. S. Duren , Code Compliance, Inc.	S. Rawalpindiwala , Kohler Co.
	M. Weiss , Weiss Research

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
<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 for the purpose of providing 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, 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 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 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 that are open to the public. Persons wishing to attend any meeting should contact the Secretary of the A112 Standards Committee.

PROTECTORS/INSULATORS FOR EXPOSED WASTE AND SUPPLIES ON ACCESSIBLE FIXTURES

1 GENERAL

1.1 Scope

This Standard shall show material and performance specifications and use of protectors/insulators for exposed waste and supplies for public/commercial and private/residential buildings using product covered under this Standard.

This Standard is intended to also cover products that will satisfy the requirements of ICC/ANSI A117.1, Standard for Accessible and Usable Buildings and Facilities for Persons With Physical Disabilities, and to establish a generally acceptable performance standard for protectors/insulators for exposed waste and supplies, so a physically challenged person will be protected when using a sink or lavatory in a public/commercial or private/residential facility.

1.2 Units of Measurements

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

2 DEFINITIONS

accessible fixture: a plumbing fixture that complies with the requirements of ICC/ANSI A117.1, Standard for Accessible and Usable Buildings and Facilities for Persons With Physical Disabilities.

protectors/insulators: individual covers over waste and supply pipes that isolate them to prevent injury from contact with hot, cold, or sharp surfaces.

supplies: the exposed water pipes to a fixture fitting consisting of stop valves and riser tubing under a sink or lavatory.

voids: any unprotected area of exposed waste and supplies that could contact the user.

waste: standard drains with tailpieces and P-traps, standard drains with tailpieces and bottle traps, or offset drains using 90-deg elbows, horizontal legs, vertical tailpieces, and P-traps.

3 REFERENCES

The following is a list of publications referenced in this Standard.

ASTM G21, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
 Publisher: American Society for Testing and Materials (ASTM International), 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 (www.astm.org)

ICC/ANSI A117.1, Standard for Accessible and Usable Buildings and Facilities for Persons With Physical Disabilities¹

Publisher: International Code Council (ICC), 500 New Jersey Avenue, NW, Washington, DC 20001 (www.iccsafe.org)

4 DESIGN REQUIREMENTS

4.1 General Requirements

Trap protectors/insulators shall be designed to fit the specified size of the trap. A single size trap protector/insulator shall be permitted to accommodate multiple sizes of traps: 1¼ in., as well as 1½ in. or 2 in. nominal. Field-applied protectors/insulators shall have enough fasteners to securely fasten the protectors/insulators over the drain pipe assemblies, water supply risers, and stops. A fastener consisting of a single, continuous seam shall also be acceptable. Fasteners shall not present sharp or abrasive external surfaces. Devices covered by this Standard shall be removable, reusable, and after reassembly meet the requirements of this Standard.

4.2 Heat Transfer

Protectors/insulators for exposed waste and supplies shall be engineered to comply with the heat transfer requirements contained in para. 5.1.

4.3 Workmanship

Exterior surfaces of protectors/insulators for exposed waste and supplies exterior surface shall be smooth and water resistant, having no sharp or abrasive features or protrusions.

¹ May also be obtained from the American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036 (www.ansi.org).

4.4 Water Resistance

Protectors/insulators for exposed waste and supplies shall meet the water resistance requirements contained in para. 5.3.

4.5 Fungus Growth Resistance

Protectors/insulators for exposed water supply and drainpipes shall conform to the fungus growth resistance requirements of para. 5.4.

5 PERFORMANCE REQUIREMENTS AND TEST METHODS

5.1 Heat Transfer Test

Tests shall be conducted at a room temperature of $73.4^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ($23^{\circ}\text{C} \pm 2^{\circ}\text{C}$). One sample of each protector/insulator shall be installed on the recommended supply or waste assembly in accordance with the manufacturers' instructions. Maintain the water flowing through the supplies or waste at a water temperature at $140^{\circ}\text{F} \pm 2^{\circ}\text{F}$ ($60^{\circ}\text{C} \pm 1.1^{\circ}\text{C}$) for a period of 5 hr. A thermocouple attached to the outside wall of the protector/insulator shall be used to record the temperature every 15 min over the length of the test.

NOTES:

- (1) If the manufacturer's specification covers more than one size of fitting for the protector/insulators, the larger size of the fitting shall be used for testing.
- (2) The temperature-measuring devices or thermocouples shall be placed on the hottest spots of the outside wall of the protector/insulators. [Exception: Thermocouples shall be placed a minimum of 2 in. (50.8 mm) from the wall for supply stops.]

5.1.1 Performance Requirements. Surface temperature of the protector/insulator shall not rise above 95°F (35°C).

5.2 Surface Deflection and Load Test

Using a $\frac{1}{2}$ in. (12.7 mm) diameter metal rod, apply a 10 lb (44.5 N) force at a right angle against the outside wall of P-trap, supply stops, or riser protector for 10 sec.

5.2.1 Performance Requirements. The surface shall not crack or show signs of voids. After the load is removed for 5 min, the outside surface shall have no indentation where the load was applied.

5.3 Water Resistance Test

Four 4 in. \times 4 in. (101.6 mm \times 101.6 mm) specimens are required for this test. One specimen shall be held as a controlled specimen. Three specimens shall be placed

against the portholes of a suitable nonreactive vessel (see Fig. 1). The portholes shall have a minimum area of 6 in.² (38.7 cm²) each. Use watertight connections between the tank and specimens. Cover any unused holes with a nonreactive material. Use distilled water. Bring water temperature to $180^{\circ}\text{F} \pm 2^{\circ}\text{F}$ ($82.2^{\circ}\text{C} \pm 1.1^{\circ}\text{C}$), and maintain for 24 hr. The test faces of the samples shall be submerged during testing. Rate each specimen against the controlled specimen for the following: blistering, color change, cracks, or holes.

Rating Chart

1	No visible change
2	Slight change of gloss and/or color, only visible at certain angles
3	Moderate change in gloss and/or color
4	Marked change in gloss and/or color
5	Surface distortion and/or blistering

5.3.1 Method of Inspection. The surface of the sample specimen shall be inspected by the unaided eye for defects and blemishes from a distance of 1 ft to 2 ft (0.3 m to 0.6 m). The light source shall be equivalent near the surface to be inspected of $150 \text{ fc} \pm 15 \text{ fc}$ (1 614 lx \pm 538 lx).

5.3.2 Performance Requirements. Rate each sample using the rating chart in para. 5.3. The water resistance rating shall be determined by totaling, for each test specimen, the numerical designation for each of the five gradations of change, then totaling the values of all three specimens, and dividing by 3. This average shall not be over 3.

5.4 Fungus Growth Test

Three specimens of the material exposed on the outside of the protector/insulator shall be tested in accordance with ASTM G21.

5.4.1 Performance Requirements. All three specimens shall have zero fungus growth.

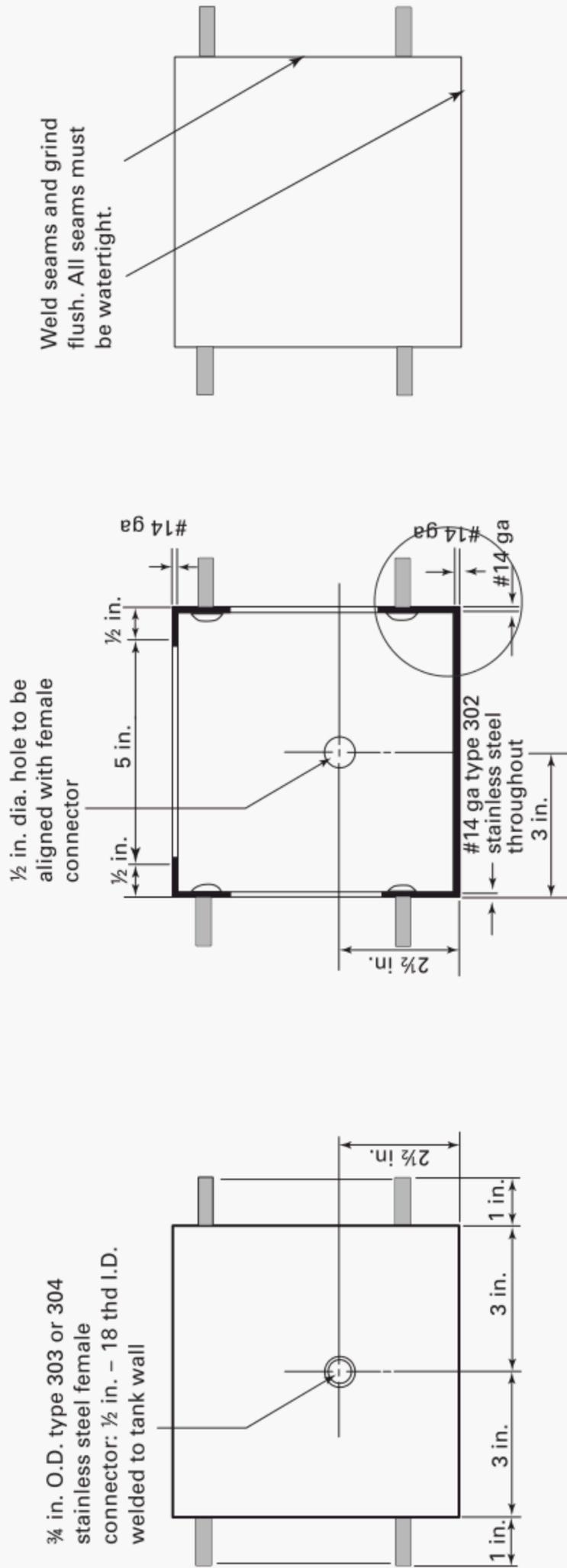
6 MARKING AND IDENTIFICATION

Each protector/insulator for exposed waste and supplies shall be permanently and legibly marked as follows:

- (a) the manufacturer's name or trademark
- (b) model number

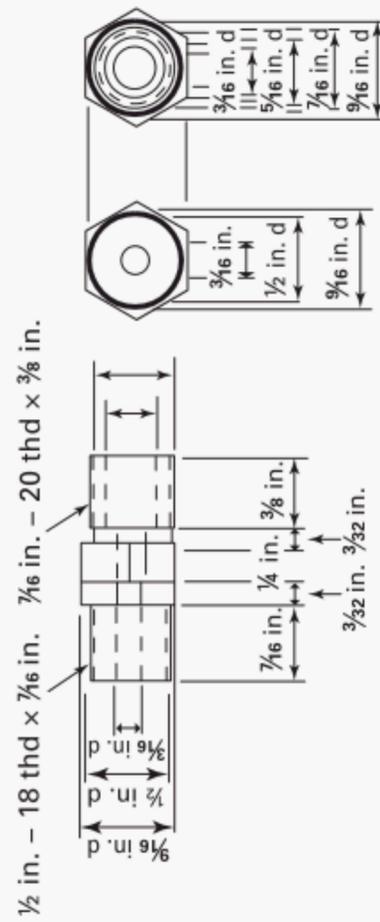
The container or package of each protector/insulator for exposed waste and supplies shall indicate the size or size range.

Fig. 1 Boiler Test Tank (Cont'd)

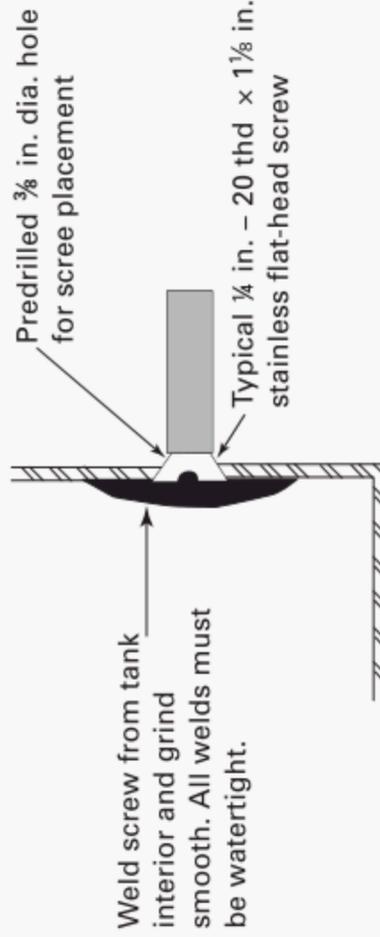


Weld seams and grind flush. All seams must be watertight.

Connector End View



Section A-A



Connector Plug Detail

GENERAL NOTE: For metric conversion, 1 in. = 25.4 mm.

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 (R2010)
Stainless Steel Drainage Systems for Sanitary, DWV, Storm, and Vacuum Applications, Above- and Below-Ground	A112.3.1-2007
Macerating Toilet Systems and Related Components	A112.3.4-2000 (R2004)
Water Heater Relief Valve Drain Tubes	A112.4.1-2009
Water Closet Personal Hygiene Devices	A112.4.2-2009
Plastic Fittings for Connecting Water Closets to the Sanitary Drainage System	A112.4.3-1999 (R2010)
Point of Use and Branch Water Submetering Systems	A112.4.7-2002 (R2008)
Manually Operated, Quarter-Turn Shutoff Valves for Use in Plumbing Systems	A112.4.14-2004 (R2010)
Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use	A112.6.1M-1997 (R2008)
Framing-Affixed Supports for Off-the-Floor Water Closets With Concealed Tanks	A112.6.2-2000 (R2010)
Floor and Trench Drains	A112.6.3-2001 (R2007)
Roof, Deck, and Balcony Drains	A112.6.4-2003 (R2008)
Sanitary Floor Sinks	A112.6.7-2011
Siphonic Roof Drains	A112.6.9-2010
Backwater Valves	A112.14.1-2003 (R2008)
Grease Interceptors	A112.14.3-2000 (R2004)
Grease Removal Devices	A112.14.4-2001 (R2007)
FOG (Fats, Oils, and Greases) Disposal Systems	A112.14.6-2010
Plumbing Fixture Fittings	A112.18.1-2005/CSA B125.1-05
Plumbing Fixture Waste Fittings	A112.18.2-2005/CSA B125.2-05
Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings	A112.18.3-2002 (R2008)
Flexible Water Connectors	A112.18.6-2009/CSA B125.6-09
Deck Mounted Bath/Shower Transfer Valves With Integral Backflow Protection	A112.18.7-1999 (R2004)
In-Line Sanitary Waste Valves for Plumbing Drainage Systems	A112.18.8-2009
Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures	A112.18.9-2011
Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures	A112.19.1-2008/CSA B45.2-08
Ceramic Plumbing Fixtures	A112.19.2-2008/CSA B45.1-08
Stainless Steel Plumbing Fixtures	A112.19.3-2008/CSA B45.4-08
Porcelain Enamelled 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, and Hot Tubs	A112.19.8-2007
Non-Vitreous Ceramic Plumbing Fixtures	A112.19.9M-1991 (R2008)
Dual Flush Devices for Water Closets	A112.19.10-2003 (R2008)
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 (R2007)
Six-Liter Water Closets Equipped With a Dual Flushing Device	A112.19.14-2006 (R2011)
Bathtubs/Whirlpool Bathtubs With Pressure Sealed Doors	A112.19.15-2010
Manufactured Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems	A112.19.17-2010
Vitreous China Nonwater Urinals	A112.19.19-2006 (R2011)
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
Hydrants for Utility and Maintenance Use	A112.21.3M-1985 (R2007)
Cleanouts	A112.36.2M-1991 (R2002)

The ASME Publications Catalog shows a complete list of all the Standards published by the Society. For a complimentary catalog, or the latest information about our publications, call 1-800-THE-ASME (1-800-843-2763).

ASME Services

ASME is committed to developing and delivering technical information. At ASME's Information Central, we make every effort to answer your questions and expedite your orders. Our representatives are ready to assist you in the following areas:

ASME Press
Codes & Standards
Credit Card Orders
IMEchE Publications
Meetings & Conferences
Member Dues Status

Member Services & Benefits
Other ASME Programs
Payment Inquiries
Professional Development
Short Courses
Publications

Public Information
Self-Study Courses
Shipping Information
Subscriptions/Journals/Magazines
Symposia Volumes
Technical Papers

How can you reach us? It's easier than ever!

There are four options for making inquiries* or placing orders. Simply mail, phone, fax, or E-mail us and an Information Central representative will handle your request.

Mail
ASME
22 Law Drive, Box 2900
Fairfield, New Jersey
07007-2900

Call Toll Free
US & Canada: 800-THE-ASME
(800-843-2763)
Mexico: 95-800-THE-ASME
(95-800-843-2763)
Universal: 973-882-1167

Fax—24 hours
973-882-1717
973-882-5155

E-Mail—24 hours
Infocentral@asme.org

* Information Central staff are not permitted to answer inquiries about the technical content of this code or standard. Information as to whether or not technical inquiries are issued to this code or standard is shown on the copyright page. All technical inquiries must be submitted in writing to the staff secretary. Additional procedures for inquiries may be listed within.

INTENTIONALLY LEFT BLANK

ASME A112.18.9-2011

ISBN 978-0-7918-3373-5



9 780791 833735



J18311