

# Protectors/ Insulators for Exposed Waste and Supplies on Accessible Fixtures

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AN AMERICAN NATIONAL STANDARD



The American Society of  
Mechanical Engineers

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**ASME A112.18.9-2011**

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**The American Society of  
Mechanical Engineers**

**Three Park Avenue • New York, NY • 10016 USA**

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## 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

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| <b>L. S. Galwin</b> , Consultant  | <b>D. W. Viola</b> , International Association of Plumbing and Mechanical Officials                  |
| <b>R. L. George</b> , Ron George Design & Consulting  | <b>M. Campos</b> , <i>Alternate</i> , International Association of Plumbing and Mechanical Officials |
| <b>R. I. Greenwald</b> , Consultant   | <b>W. C. Whitehead</b> , Whitehead Consulting Services   |

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

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

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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.

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# 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 Disabilities<sup>1</sup>

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.

<sup>1</sup> 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  $95^{\circ}\text{F}$  ( $35^{\circ}\text{C}$ ).

#### 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.<sup>2</sup> (38.7 cm<sup>2</sup>) 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  $150\text{ fc} \pm 15\text{ fc}$  ( $1\text{ 614 lx} \pm 538\text{ lx}$ ).

**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.

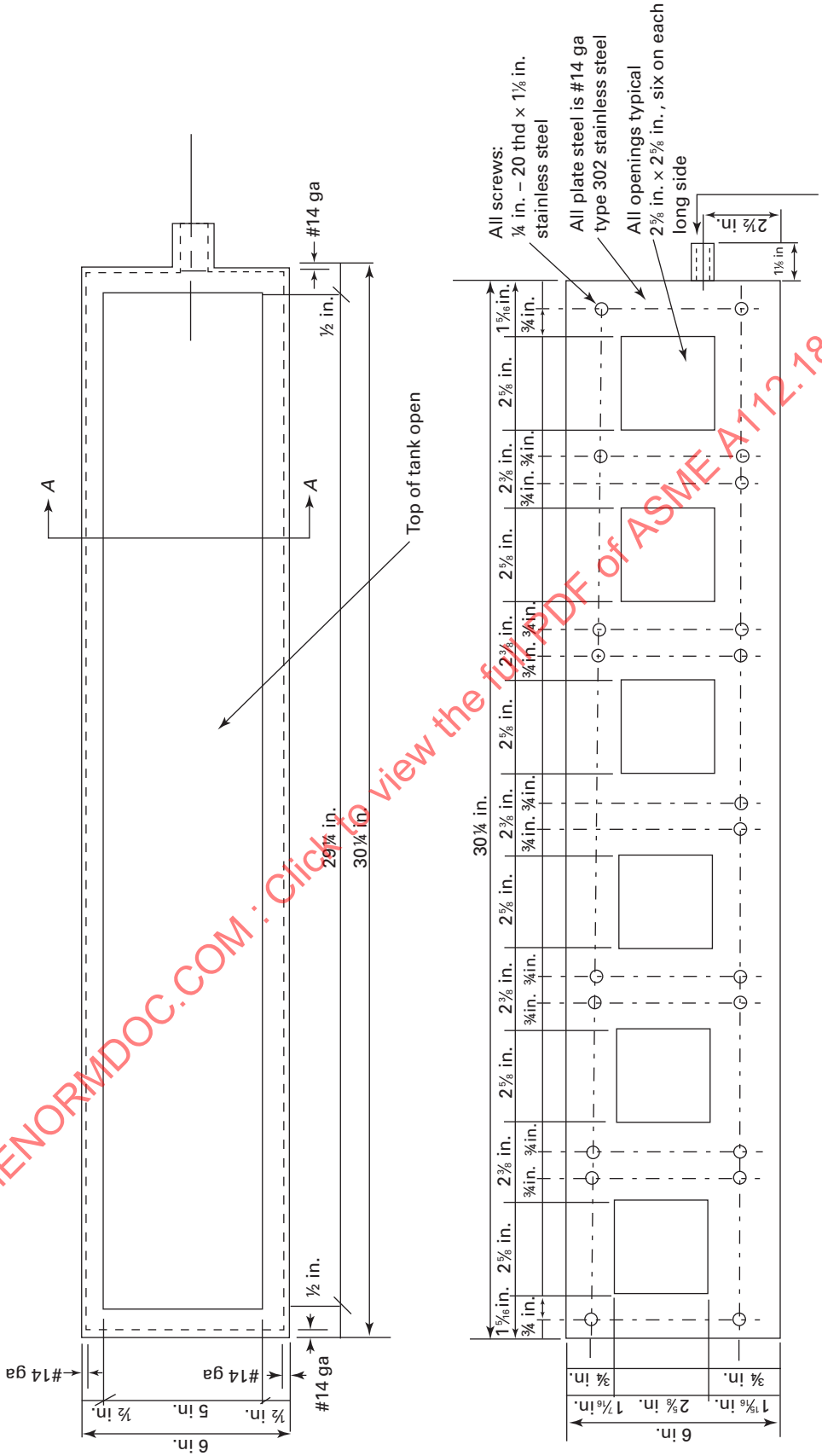
### 6 MARKING AND IDENTIFICATION

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



1/2 in. dia. hole to be aligned with female connector

¾ in. O.D. type 303 or 304 stainless steel female connector: ½ in. – 18 thd l. welded to tank wall

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

Section A-A

## End View

$\frac{1}{2}$  in. – 18 thd  $\times \frac{7}{16}$  in.  $\frac{7}{16}$  in. – 20 thd  $\times \frac{3}{8}$  in.

Diagram illustrating the installation of a flat-head screw into a tank bottom:

- The screw head is seated in a hole in the tank bottom.
- The hole is predrilled to a diameter of  $\frac{3}{8}$  in. for screw placement.
- The screw is a typical  $\frac{1}{4}$  in. diameter, 20 threads per inch, stainless flat-head screw.
- The area around the screw head is ground smooth, and all welds must be watertight.
- The screw is welded to the tank bottom.

### Connector Plug Detail

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