



**Summary of Substantive Changes
between the 2016 and 2019 editions of
ASME A112.6.3 “Floor and Trench Drains”**

Presented to the IAPMO Standards Review Committee on June 10, 2019

General: The changes to this standard might have an impact on currently listed products. The substantive changes are:

- Expanding the scope of the standard to include Aluminum in the material requirements of the products covered by this standard (see Section 2.1.2)
- Added the perimeter grade definition with a new figure for illustration purposes (see Section 1.7 and Figure 1.7-5)
- Expanded the finishes requirements to include organic and non-organic finishes with a new corrosion resistance test (see Section 2.2)
- Expanded the thickness requirements by adding Table 2.4-1 to include different values for various materials (see Section 2.4 and Table 2.4-1)
- Expanded the area of grate opening dimension requirements to include a method for area calculation and specified requirements for perimeter grates (see Sections 5.1.2 and 5.1.3)

Section 1.6 Reference Standards: The applicable standards were added for compliance as follows:

1.51.6 Reference Standards

This Standard refers to the following publications, and where such reference is made, it shall be to the latest edition of the publication, including all amendments published thereto:

ASME A112.3.1, Stainless Steel Drainage Systems for Sanitary DWV, Storm, and Vacuum Applications, Above- and Below-Ground

[ASME A112.14.1, Backwater Valves](#)

ASME A112.18.1/CSA 8125.1, Plumbing Supply Fittings

ASME 816.25, Buttwelding Ends

Publisher: The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990 (www.asme.org)

ASTM A48, Standard Specification for Gray Iron Castings

[ASTM A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless](#)

ASTM A74, Standard Specification for Cast Iron Soil Pipe and Fittings

[ASTM A123/A123M, Standard Specification for Zinc \(Hot-Dip Galvanized\) Coatings on Iron and Steel Products](#)

[ASTM A153/A153M, Standard Specification for Zinc Coating \(Hot-Dip\) on Iron and Steel Hardware](#)

ASTM A307, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength

[ASTM A312/A312M, Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipe](#)

ASTM A536, Standard Specification for Ductile Iron Castings



ASTM A563, *Standard Specification for Carbon and Alloy Steel Nuts*

ASTM A888, *Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications*

[ASTM 826, Standard Specification for Aluminum-Alloy Sand Castings](#)

[ASTM 885, Standard Specification for Aluminum-Alloy Die Castings](#)

[ASTM B117, Standard Practice for Operating Salt Spray \(Fog\) Apparatus](#)

[ASTM B209, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate](#)

[ASTM B221, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wires, Profiles, and Tubes](#)

ASTM B584, *Standard Specification for Copper Alloy Sand Castings for General Applications*

[ASTM B633, Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel](#)

[ASTM B766, Standard Specification for Electrodeposited Coatings of Cadmium](#)

ASTM C564, *Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings*

ASTM C1440, *Standard Specification for Thermoplastic Elastomeric (TPE) Gasket Materials for Drain, Waste, and Vent (DWV), Sewer, Sanitary and Storm Plumbing Systems*

ASTM D1784, *Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds*

ASTM D2661, *Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings*

ASTM D2665, *Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings*

ASTM D3350, *Standard Specification for Polyethylene Plastics Pipe and Fittings Materials*

ASTM D3965, *Standard Classification System and Basis for Specifications for Rigid Acrylonitrile-Butadiene-Styrene (ABS) Materials for Pipe and Fittings*

ASTM D4101, *Standard Classification System and Basis for Specification for Polypropylene Injection and Extrusion Materials*

ASTM D4329, *Standard Practice for Fluorescent Ultraviolet (UV) Lamp Apparatus Exposure of Plastics*

ASTM G152, *Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials*

ASTM G153, *Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials*

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)

[CISPI 301, Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications](#)

Publisher: Cast Iron Soil Pipe Institute (CISPI), 2401 Fieldcrest Drive, Mundelein, IL 60060 (www.cispi.org)

CSA B602, *Mechanical couplings for drain, waste, and vent pipe and sewer pipe*

Publisher: Canadian Standards Association (CSA Group), 178 Rexdale Boulevard, Toronto, ON, M9W 1R3, Canada (www.csagroup.org)

Section 1.7, Definitions: Removed definitions and added the perimeter grate definition with figure 1.7-5 for illustration as follows:

~~1.6~~ 1.7 Definitions

~~area, grate-free: total area of the drainage openings in the grate.~~

~~area, open: see area, grate-free.~~



perimeter grate: a grate that has openings along its outer edge, between the grate and the drain body (see Figure 1. 7-5).

Section 2, General Requirements: Expanded the material requirements to include aluminum with the reference to the applicable standards as follows:

2 GENERAL REQUIREMENTS

2.1 Materials

2.1.1 Castings. *Castings shall be sound, free of blowholes, cold shuts, fins, and other imperfections, and shall be of uniform thickness and true to pattern.*

2.1.2 Aluminum. *Aluminum sand castings shall comply with ASTM 826. Aluminum die castings shall comply with ASTM 885. Aluminum sheet and plate shall comply with ASTM 8209. Aluminum extruded bars, rods, wire, profiles, and tubes shall comply with ASTM 8221.*

2.1.23 Cast Iron. *Cast iron shall comply with Class 25 specified in ASTM A48.*

2.1.34 Ductile Iron. *Ductile iron shall comply with or exceed the requirements of Grade 60-40-18, 60-42-10, 60-45-12, or 80-55-06 specified in ASTM A536.*

Section 2.2, Finishes: Expanded the scope of the standard to include organic and non-organic finishes with a corrosion resistance test as follows:

2.2 Finishes

2.2.1 General. *Coated or plated components shall be prepared in such a way that a suitable surface for proper bonding of the finish is provided.*

2.2.2 Nonorganic Finishes

2.2.2.1 Preparation. *Parts to be covered with nonorganic finishes shall be prepared as follows:*

(a) Parts to be cadmium-plated shall be prepared and plated in accordance with ASTM B766.

(b) Parts to be chrome-plated shall be polished before plating and subsequently given a commercial-grade coppernickel-chromium plating.

(c) Parts to be given a commercial-grade bronze chromate treatment shall first be given a commercial-grade cadmiumplate treatment

(d) Parts to be zinc-plated shall be prepared in accordance with ASTM B633.

(e) Parts to be hot-dip galvanized shall be coated in accordance with ASTM A123/A123M or ASTM A153/A153M.

2.2.2.2 Corrosion Resistance. *The specimens with nonorganic finishes selected for testing shall be as received from the manufacturer and shall not have been subjected to any other test Coated areas visible after installation shall be free of defects and uncoated areas and shall not be stained.*

2.2.2.3 Test Procedure. *Coated parts shall be tested in accordance with ASTM B117 for 24 h.*

2.2.2.4 Pass/Fail Criteria. *Coatings shall not show more than one surface defect in any 650-mm² (1.0-in.²) area that is visible after installation, or up to three surface defects on a 25-mm (1.0-in.) length of parting line. Surface defects shall be not larger than 0.8 mm (0.03 in.) in any dimension.*

If widely scattered surface defects are observed after testing (as occasionally occurs), such defects shall not significantly deface or adversely affect the function of the coated part.

Coated and uncoated parts may be polished or cleaned with a common household or metal cleaner before evaluation.

2.2.3 Organic Finishes. *Organic finishes shall comply with the applicable requirements of ASME A112.18.1/CSA B125.1.*



Section 2.4, Drain Body Thickness: Replaced the minimum thickness requirement with table 2.4-1 as follows:

2.4 Drain Body Thickness

The minimum thickness for drain body sumps ~~shall be 3.96 mm (0.156 in.)~~ after fabrication, shall be as specified in Table 2.4-1.

<u>Material</u>	<u>Minimum Thickness, mm (in)</u>
<u>Aluminum (sand cast)</u>	<u>3.96 (0.156)</u>
<u>Aluminum (die cast)</u>	<u>3.96 (0.156)</u>
<u>Aluminum (extruded)</u>	<u>3.05 (0.120)</u>
<u>Bronze</u>	<u>3.96 (0.156)</u>
<u>Nickel-bronze</u>	<u>3.96 (0.156)</u>
<u>Cast iron</u>	<u>3.96 (0.156)</u>
<u>Ductile iron</u>	<u>3.96 (0.156)</u>
<u>Stainless steel (cast)</u>	<u>3.96 (0.156)</u>
<u>Stainless steel (plate, sheet or strip)</u>	<u>3.96 (0.156)</u>
<u>Horizontal surface [Note (1)]</u>	<u>0.635 (0.025)</u>
<u>Vertical surface [Note (2)]</u>	<u>0.559 (0.022)</u>
<u>Corners [Note (3)]</u>	<u>0.508 (0.020)</u>
<u>Acrylonitrile-butadiene-styrene</u>	<u>3.96 (0.156)</u>
<u>Polyethylene</u>	<u>3.96 (0.156)</u>
<u>Polypropylene</u>	<u>3.96 (0.156)</u>
<u>Polyvinylchloride</u>	<u>3.96 (0.156)</u>

NOTES:

- (1) The thickness of horizontal surfaces shall be determined by taking the average of three measurements from the bottom of the drain.
- (2) The thickness of vertical surfaces shall be determined by taking the average of measurements.
- (3) The thickness at corners shall be determined by taking the average of six measurements.

Section 3, Bolts and Fasteners: Removed Sections 3.4 and 3.5 for Threads and Tolerances from the bolts and fasteners requirements as follows:

3.4 Threads

~~Threads shall be American national pipe taper (NPT) Classes 2A and 2B.~~

3.5 Tolerances

~~Tolerances on the dimensions specified in Tables 1, 2, and 3, and the associated figures shall be ±1.6 mm (±0.06 in.).~~



Section 4.3.4, Spigot (No-Hub): included additional standards for compliance with the outlet connection requirements for spigot (no-hub or hubless) type connections and added Section 4.3.4.2 for wall thickness as follows:

4.3.4 Spigot (No-Hub)

4.3.4.1 Outlet Connections. *Spigot (i.e., no-hub or hubless) outlet connections shall comply with the outside diameters specified in [ASTM A53](#), ASTM A74, [ASTM A312/A312M](#), ASTM A888, [ASTM D2661](#), [ASTM D2665](#), or [CISPI 301](#).*

4.3.4.2 Wall Thickness. *The wall thickness of the spigot (i.e., no-hub or hubless) connection shall comply with the minimum wall thickness specified in [ASTM A53](#), ASTM A74, [ASTM A312/A312M](#), ASTM A888, [ASTM D2661](#), [ASTM D2665](#), or [para. 2.4](#).*

Section 5, Top Dimensions – Area of Grate Openings: Added Sections 5.1.2 and 5.1.3 for Area Calculations and Perimeter Grates as follows:

5 Top Dimensions - Area of Grate Openings

5.1 Requirements

5.1.1 General. *The areas of the grate openings of floor and trench drains shall be as specified in Table 5.1-1.*

5.1.2 Area Calculations. *The area of the grate openings shall be the sum of the minimum projected area of each grate opening when viewing the grate from above, perpendicular to its top surface.*

For all grates other than perimeter grates, only the grate itself shall be considered in the measurement of the area of the grate openings; no other part of the drain shall be considered.

5.1.3 Perimeter Grates. *The area of the grate openings for perimeter grates shall include the minimum projected area of the opening(s) between the grate and the drain body, as viewed from above, perpendicular to its top surface.*

NOTE: *The frame or drain body constitutes the outer edge of perimeter grate openings.*