



**Summary of Substantive Differences
between
ASME A112.3.4-2000 “Macerating Toilet Systems and Related Components”
CSA B45.9-02 “Macerating Systems and Related Components”
and the new joint harmonized
ASME A112.3.4-2013/CSA B45.9-13 “Plumbing fixtures with pumped waste
and macerating toilet systems”**

Presented to the IAPMO Standards Review Committee on March 10, 2014

General: This is the first edition of the joint harmonized standard ASME A112.3.4-2013/CSA B45.9-13, which integrated the requirements of the standards ASME A112.3.4-2000, and CSA B45.9-02. The substantive changes include:

- Expanded the scope to include pumped waste systems (see Section 1.4)
- Added requirements for lavatories and sinks, bathtubs, and showers connected to macerating toilet systems (see Sections 4.1.5, 4.1.6, and 4.1.7)
- Added general requirements for pumped waste systems (see Sections 4.3)
- Added a cycle test for shower and bathtub pumped waste systems (see Section 5.1.1)
- Added a hydrostatic pressure test of the holding tank assembly for the macerating toilet system (see Section 5.4)
- Added a discharge test for pumped waste systems (see Section 5.5)
- Revised marking requirements to reflect the harmonization of the standards “ASME A112.3.4/CSA B45.9”

Section 1, Scope: The scope was expanded to include pumped waste systems as follows:

[1.4](#)

[Pumped waste systems consist of three major components:](#)

[\(a\) an automatic activation of the pumped waste system;](#)

[\(b\) a drainage connection to the pump; and](#)

[\(c\) a pump that pumps the waste to the gravity drainage system.](#)

Section 4.1, Material requirements and general requirements: Added requirements for lavatories and sinks, bathtubs and showers as follows:

[4.1.5 Lavatories and sinks](#)

[Lavatories or sinks that are a part of a pumped waste system or that connect to a macerating toilet system shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5-10/IAPMO Z124.10. The lavatory or sink shall not be required to conform to the drainage opening area and drain diameter of these standards.](#)

[4.1.6 Bathtubs](#)

[Bathtubs that are a part of a pumped waste system or that connect to a macerating toilet system shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.3/CSA B45.4, ASME A112.19.15, or CSA B45.5-10/IAPMO Z124.10. The bathtub shall not be required to conform to the drainage opening area and drain diameter of these standards.](#)



4.1.7 Showers

Showers that are a part of a pumped waste system or that connect to a macerating toilet system shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5-10/IAPMO Z124.10. Showers may also be field fabricated in accordance with the applicable plumbing code. The shower shall not be required to conform to the drainage opening area and drain diameter of these standards.

Section 4.3, Pumped waste components: Added general requirements for pumped waste systems as follows:

4.3 Pumped waste components

4.3.1 Pump

The pump for pumped waste systems shall comply with either UL 778 or CSA C22.2 No. 108 and meet the performance requirements for permanently installed pumps.

4.3.1.1 Pump activation and function

The pump shall automatically activate to discharge the contents of the fixture when the fixture is used. The pump system shall prevent waste from rising in the fixture. The pump shall be capable of discharging the waste to a vertical height of 3.7 m (12 ft) as covered in Clause 5.2.

4.3.2 Discharge pipe

The discharge pipe from the pump of a pumped waste system shall be a minimum size of 19 mm (0.75 in) nominal.

4.3.3 Backflow prevention

A check valve shall be provided with the pumped waste system to prevent the return of discharged waste to the plumbing fixture. The check valve shall be capable of resisting a 3.7 m (12 ft) column of water head pressure when tested in accordance with Clause 5.3.

4.3.4 Venting not required

A vent shall not be required for a pumped waste system.

Section 5.1, Cycle testing: Added a cycle for shower and bathtub pumped waste systems as follows:

5.1.1 Test method

The macerating pump and pump for a lavatory or sink pumped waste system shall be "on/off" tested 50,000 times. The pump for a shower or bathtub pumped waste shall be cycled tested "on/off" for 5,000 cycles. One cycle shall be "on" for 5 sec and "off" for 5 sec.



Section 5.4, Hydrostatic pressure test of the holding tank assembly: This test, formerly part of CSA B45.9-02 but not ASME A112.3.4 was included in the harmonized standard as follows:

[5.4 Hydrostatic pressure test of the holding tank assembly](#)

[5.4.1 Test method](#)

[The holding tank assembly for the macerating toilet system shall be installed in accordance with the manufacturer's instructions.](#)

[The inlet connectors shall be installed, with the inlets to the connectors plugged or sealed. All other openings shall be sealed. The complete tank assembly shall be subjected to a hydrostatic pressure equivalent to 35.8 kPa \(5.2 psi\) or a pressure equal to the maximum discharge elevation recommended by the manufacturer, whichever is greater, at 23 °C \(73°F\).](#)

[5.4.2 Performance requirement](#)

[The tank assembly shall not leak. Permanent distortion that does not affect the performance and function of the unit is acceptable.](#)

Section 5.5, Discharge test: Added a discharge test for pumped waste systems as follows:

[5.5 Discharge test](#)

[5.5.1 Test method](#)

[The discharge test shall be conducted as follows:](#)

[\(a\) The pumped waste system shall be connected to the fixture for which it is designed.](#)

[\(b\) The pumped waste system shall be installed in accordance with the manufacturer's instructions.](#)

[\(c\) The discharge pipe shall rise 3.7 m \(12 ft\) and discharge to a safe place.](#)

[\(d\) The water supply to the fixture shall be turned on at the maximum flow rate for the fixture.](#)

[\(e\) Water shall flow into the fixture for 10 min.](#)

[Note: For bathtubs, the flow rate is based on the overhead shower.](#)

[5.5.2 Performance](#)

[Water shall run continuously down the drain and shall not rise in the fixture during the test.](#)

Section 6.1, Marking: Revised the marking requirements to reflect the harmonization of the standards as follows:

The pumped waste or macerating toilet system shall be marked with the following information:

(c) "ASME A112.3.4/[CSA B45.9](#)".