Plumbing system components for recreational vehicles

1.3 Normative references

The following reference documents contain requirements that constitute requirements of this NSF/ANSI Standard. At the time of publication, the indicated editions were valid. All documents are subject to revision, and it is the responsibility of the user of this specification to determine the applicability of the most recent editions of these documents.

ANSI Z124.1 – 95. Plastic Bathtub Units
ANSI Z124.2 – 95. Plastic Shower Receptors and Shower Stalls
ANSI Z124.3 – 95. Plastic Lavatories
ANSI Z124.4 – 96. Plastic Water Closet Bowls and Tanks
ANSI/ASSE 1001-02. Performance Requirements for Atmospheric Type Vacuum Breakers
ANSI/ASSE 1051 – 02. Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems
ASME A112.18.2 – 2002. Plumbing Fixtures Waste Fittings
ASME 112.18.3 2002 – 2003. Performance Requirements for Backflow Devices and Systems in Plumbing Fixture Fittings

1 American National Standards Institute (ANSI), 11 West 42nd St., New York, NY  10036
2 ASSE International Office, 901 Canterbury, Suite A, Westlake, OH  44145
3 The American Society for Mechanical Engineers (ASME) International, Three Park Avenue, New York, NY 10016-5990
4 ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA  19428-2959
11 Mechanical seal toilets

11.1 Scope

Mechanical seal toilets covered by this Section are to be connected to the potable water system and the sanitary drainage system in recreational vehicles.

11.2 Materials

Vitreous china shall comply with requirements of ASME A112.19.2M. Plastics, if used, shall comply with the requirements of ANSI Z124.4. Metals shall be corrosion resistant.

11.3 Design and construction

11.3.1 Bodywaste outlet and passages shall be sized to pass a 2-¾-in (69.9-mm) diameter ball, and have impervious surfaces. They shall be free of obstructions, recesses, or chambers that permit fouling. The mechanical seal and seat shall have leakproof seals.

11.3.2 Fixture bases shall be mounted on acceptable closet flanges with gaskets to provide gas- and watertight seals.

11.3.3 Flushing mechanisms shall insure adequate cleansing of interior surfaces during flushing cycle at minimum operating pressures.

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5 U.S. Food and Drug Administration 5600 Fishers Lane, Rockville MD 20857-0001
6 International Association of Plumbing and Mechanical Officials (IAPMO), 5001 E. Philadelphia St., Ontario, CA 91761
7 Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, Piscataway, NJ 08854
8 National Fire Protection Association (NFPA), 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269
11.3.4 At least 1 in (25.4 mm) of water shall be retained in the bowl after flushing.

11.3.5 A single control shall be used for flushing and refilling.

11.3.6 The mechanical seal mechanism shall withdraw completely from the path of waste discharge during flushing.

11.3.7 The water flushing mechanism and components shall be accessible for adjustment, repair, and replacement.

11.3.8 An overflow in the toilet shall be optional when the toilet is equipped with an inlet opening at least nominal 2 in (12.7 mm) in diameter. The overflow line shall be at least a nominal 2-in diameter or less, if the diameter will take full discharge of supply valve, and form a trap with a seal at least 2 in (50.8 mm) deep and be accessible for cleaning. The trap may have a drain fitting. The overflow outlet shall discharge beneath the mechanical seal. A portion of the water in the overflow trap shall be replaced with fresh water at each flushing.

11.3.9 The toilet shall have an acceptable backflow preventer installed on the discharge side of the last control valve in the supply line, and be protected from physical damage and contamination.

11.4 Performance

11.4.1 The toilet shall operate at a minimum flow pressure of 8 psig (55.2 kPa) and a maximum static pressure of 100 psig (690 kPa).

11.4.2 During flushing, a clean bowl shall be completely covered with a film of water 1.5 in (38.1 mm) below the flushing rim.

11.4.3 The toilet shall be subjected to 1000 continuous cycles at a minimum of 20 psi (138 kPa) static pressure without failure.

11.4.4 Toilet bowls shall not lose more than 10 percent of water volume when operated according to the manufacturer's instructions and tested at 73 °F ± 3 °F (23 °C) for at least 24 h.

11.5 Load Test

Toilets shall meet the requirements of IAPMO TS-1, Section 5.8. Tanks shall meet the requirements of IAPMO TS-1, Section 5.9.

12 Self-contained, recirculating, chemically controlled toilets

12.1 Scope

Toilets covered by this section are self-contained, electrically operated, recirculating, and chemically controlled for use in recreational vehicles.

12.2 Applicable standards

Toilets covered by this Section shall comply with IAPMO TS 12.

12.3 Load Test
Toilets shall meet the requirements of IAPMO TS-1, Section 5.8. Tanks shall meet the requirements of IAPMO TS-1, Section 5.9.

12.34 Marking and identification

Toilets shall be clearly and permanently marked with the following:

– manufacturer's name; and
– model number.