

IAPMO IGC 380-~~2023~~2024



PUBLIC REVIEW DRAFT

Industry Standard for
Plastic Sanitary Latrine Pans



IAPMO Standard

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Preface

This is the ~~first~~second edition of IAPMO IGC 380, Plastic Sanitary Latrine Pans. [The first edition was published November 2023](#)

This Standard was developed by the IAPMO Standards Review Committee (SRC) in accordance with the policies and procedures regulating IAPMO industry standards development, Policy S-001, Standards Development Process. This Standard was approved as an IAPMO Industry Standard on **November 6, 2023.**

Notes:

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- (4) *During its development, this Standard was made available for public review, thus providing an opportunity for additional input from stakeholders from industry, academia, regulatory agencies, and the public at large. Upon closing of public review, all comments received were duly considered and resolved by the IAPMO Standards Review Committee.*
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 - (a) *standard designation (number);*
 - (b) *relevant section, table, or figure number, as applicable;*
 - (c) *wording of the proposed change, tracking the changes between the original and the proposed wording; and*
 - (d) *rationale for the change.*
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 - (a) *the edition of the standard for which the interpretation is being requested;*
 - (b) *the definition of the problem, making reference to the specific section and, when appropriate, an illustrative sketch explaining the question;*
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Plastic Sanitary Latrine Pans

1 Scope

1.1 General

1.1.1 This Standard covers pour flush plastic latrine toilet fixtures intended for indoor, and outdoor applications, and specifies requirements for materials, construction, performance, testing, and markings.

1.1.2 Plastic latrine fixtures covered under this Standard include but are not limited to:

- (a) Squat Pan
- (b) Sit Stool
- (c) Footrest

1.2 Terminology

In this Standard,

- (a) “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy to comply with the Standard;
- (b) “should” is used to express a recommendation, but not a requirement;
- (c) “may” is used to express an option or something permissible within the scope of the Standard; and
- (d) “can” is used to express a possibility or a capability.

Notes accompanying sections of the Standard do not specify requirements or alternative requirements; their purpose is to separate explanatory or informative material from the text. Notes to tables and figures are considered part of the table or figure and can be written as requirements.

1.3 Units of Measurement

SI units are the primary units of record in global commerce. In this Standard, the inch/pound units are shown in parentheses. The values stated in each measurement system are equivalent in application, but each unit system is to be used independently. All references to gallons are to U.S. gallons.

2 Reference Publications

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

ASME International (The American Society of Mechanical Engineers)

ASME A112.18.2/CSA B125.2

Plumbing waste fittings

ASME A112.19.2/CSA B45.1

Ceramic plumbing fixtures

CSA Group (Canadian Standards Association)

ASME A112.19.2/CSA B45.1

Ceramic plumbing fixtures

ASME A112.18.2/CSA B125.2

Plumbing waste fittings

CSA B45.5/IAPMO Z124

Plastic Plumbing Fixtures

IAPMO (International Association of Plumbing and Mechanical Officials)

CSA B45.5/IAPMO Z124

Plastic Plumbing Fixtures

Koeller and Company / Gauley Associates Ltd.

Maximum Performance (MaP) Testing Toilet Fixture Performance Testing Protocol 1 Version 7 – January 2018

3 Definitions

The following definitions shall apply in this Standard:

Footrest – a feature of a latrine pan that provides secure footing while using the toilet. Footrest may be raised from floor level of pan to minimize soiling of feet and may have a textured top surface to avoid slippage.

Gas Seal – a device that separates the waste containment space from the user space to prevent the escape of sewer gas.

Pour Flush – water is poured into latrine pan with roughly 1 liter per second flowrate, using a cup or scoop like apparatus with a minimum opening diameter of 4 inches from 2 ft above the floor level, aimed directly at the waste specimen to evacuate waste.

Sanitary Latrine Pan – a receptacle that is used as a toilet and is not attached to a water source. Sanitary latrine pan may include but are not limited to squat pans, sit stools, footrests, and a gas seal.

Sit Stool – a latrine pan that provides an elevated sitting surface for comfort during usage.

Squat Pan – a low profile latrine pan that is intended for use in the squatting position.

Waste Containment – a container or a pit hole that contains human excreta.

4 General Requirements

4.1 Materials

Plastic latrine fixtures covered by this Standard shall comply with the applicable material requirements in CSA B45.5/IAPMO Z124.

4.2 Fixtures Including Water Traps

Ceramic latrine fixtures covered by this Standard shall comply with the applicable requirements in ASME A112.19.2/CSA B45.1.

4.3 Factory Supplied Waste Fittings

Plastic latrine fixtures covered by this Standard shall comply with the applicable requirements in ASME A112.18.2/CSA B125.2.

4.4 Waste Flush

Sanitary latrine pans shall be tested for waste flush in accordance with Section 5.9

4.5 Sanitary Gas Seal

Sanitary latrine pans shall be provided with a seal that prevents the entry of sewer gas into the occupant space.

5 Testing Requirements

5.1 Stain Resistance Test

The stain resistance test shall be performed in accordance with the requirements of Section 5.11, Stain Resistance Test of CSA B45.5/IAPMO Z124.

5.2 Colorfastness Test

The colorfastness test shall be performed in accordance with the requirements of Section 5.11, Colorfastness Test of CSA B45.5/IAPMO Z124.

5.3 Cleanability and Wear Tests

The cleanability test shall be performed in accordance with the requirements of Section 5.12, Cleanability Test of CSA B45.5/IAPMO Z124.

5.4 Cigarette Test

The cigarette test shall be performed in accordance with the requirements of Section 5.14, Cigarette Test of CSA B45.5/IAPMO Z124.

5.5 Chemical Resistance Test

The chemical resistance test shall be performed in accordance with the requirements of Section 5.15, of CSA B45.5/IAPMO Z124.

5.6 Load Test for Squat Pans with Load Bearing Footrests

5.6.1 Test Procedure

The load test for squat pans with load bearing footrests shall be conducted as follows:

- (a) Set the fixture using a method equivalent to the manufacturer's installation instructions.
- (b) Preload the specimen with a 150 ± 2.5 kgf (330 ± 5.5 lbf) test load applied to the center of the footrest of the specimen using a 127 mm (5 in) diameter load-distribution disk resting on a 13 mm (0.5 in) thick sponge rubber or equivalent pad. If the squat pan has footrests on both sides of the well, the load test shall be performed on each footrest. In the case of squat pans with no load bearing footrests, this test can be omitted.
- (c) Leave the load in place for 2 ~~to 3~~ minutes to allow for settlement of the test apparatus and initial slip in the fasteners.
- (d) Remove the load.
- (e) After 10 ~~to 15~~ minutes of removing the preload, reapply the test load for ~~at least 2~~ minutes to the center of the same footrest of the specimen and, where applicable, midway between the ribs.
- (f) Measure the deflection under the load with a deflectometer with a reading accuracy of at least 0.025 mm (0.001 in).
- (g) Measure the residual deflection 10 ± 1 minutes after removal of the test load.
- (h) Repeat steps (a) to (g) if the squatting pan has multiple loading points as stated in step (b) ~~also incorporates a footrest by applying the load to the center of the footrest, or where it is least supported.~~

5.6.2 Performance Requirements

There shall be no visible cracks of the specimen, deflections under the test load shall not exceed ~~3.814~~ mm (~~0.150-160~~ in); and the maximum residual deflection 10 min after removal of the load shall not exceed ~~0.2032~~ mm (~~0.008-08~~ in).

5.7 Impact Test for Squat Pan Well

5.7.1 Test Procedure

The impact test for the squat pan well shall be conducted as follows:

- (a) Set the fixture using a method equivalent to the manufacturer's installation instructions.
- (b) A 50 kg (110 lbs.) sandbag shall be dropped onto the center of the well from a height of 30 cm (12 inches) above floor level.
- (c) Remove the sandbag and inspect for damage.

5.7.2 Performance Requirements

There shall be no visible cracks or permanent deformation of the specimen,

5.8 Load Test for Sit Stool

5.8.1 Test Procedure

The load test for sit stool shall be conducted as follows:

- (a) Set the fixture using a method equivalent to the manufacturer's installation instructions.
- (b) Preload the specimen with a 150 ± 2.5 kgf (330 ± 5.5 lbf) test load applied to the sitting surface of the stool using a 127 mm (5 in) diameter load-distribution disk resting on a 13 mm (0.5 in) thick sponge rubber or equivalent pad. If the sitting surface makes multiple contact points with the user, as in the case of two contact points on the two sides of the well, the load test shall be performed at the center of each contact point with a loading of $150 + 2.5$ kg ($330 + 5.5$ lbs.) divided by the number of contact points.
- (c) Leave the load in place for 2 to 3 minutes to allow for settlement of the test apparatus and initial slip in the fasteners.
- (d) Remove the load.
- (e) After 10 to 15 minutes of removing the preload, reapply the test load for at least 2 minutes to the stool and, where applicable, midway between the ribs.
- (f) Measure the deflection under the load with a deflectometer with a reading accuracy of at least 0.025 mm (0.001 in).
- (g) Measure the residual deflection 10 ± 1 minutes after removal of the test load.

5.8.2 Performance Requirements

There shall be no visible cracks of the specimen, deflections under the test load shall not exceed 3.814 mm (0.150-160 in); and the maximum residual deflection 10 minutes after removal of the load shall not exceed 0.203-2 mm (0.008-08 in).

5.9 Waste Flush Test

5.9.1 Test Procedure

The flush test for a sanitary latrine pan shall be conducted as follows:

- (a) Set the fixture using a method equivalent to the manufacturer's installation instructions.
- (b) Prepare the simulated waste per Maximum Performance (MaP) Testing Toilet Fixture Performance Testing Protocol 1 Version 7, Section 5.1 Nominal specifications for soybean paste used in preparation of MaP test media, and 5.3 Uncased Test Media.
- (c) Pour flush the latrine pan two times prior to the introduction of the simulated waste in accordance with the manufacturer's specified volume of water.
- (d) Follow test specimen drop guide as detailed in the Maximum Performance Testing of Toilet Models, Section 3.6.1, 3.6.2, and 3.6.3.
- (e) Drop a total of 5 test specimens into the latrine pan.

- (f) Wait 1 minute.
- (g) Pour flush the sample with the manufacturer's specified volume of water.

5.9.2 Performance Requirements

There shall be no visible remains of the media inside the well of the latrine pan. Minimal media stain that can easily be rinsed off are permissible on the surface of the well of the latrine pan.

6 Markings and Accompanying Literature

6.1 Markings

Plastic latrine toilets complying with this Standard shall be marked with the:

- (a) manufacturer's name or trademark;
- (b) model number;
- (c) IAPMO standard designation (i.e., "IAPMO IGC 380");
- (d) Water volume required to pass the flush test in liter (L) units in increments of 0.1 liter.

6.2 Visibility

Markings shall be permanent, legible, and visible after installation, or clearly listed under product page on manufacturer's website.

6.3 Installation Instructions

Sanitary latrine pans covered by this Standard shall be accompanied by instructions for their installation.



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