

## **Glass plumbing fixtures**



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# **Update No. 1**

**CSA B45.11-11/IAPMO Z401-2011**

**May 2012**

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The following revisions have been formally approved and are marked by the symbol delta ( $\Delta$ ) in the margin on the attached replacement pages:

<b>Revised</b>	Clauses 5.2.1, 5.6.1, and 6.2
<b>New</b>	None
<b>Deleted</b>	None

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#### **4.2.2**

Factory-supplied lavatory and sink supply fittings shall comply with ASME A112.18.1/CSA B125.1.

### **4.3 Supporting structures**

#### **4.3.1**

Coated metal and plastic factory-supplied supporting structures shall comply with the requirements for coatings specified in ASME A112.18.1/CSA B125.1.

#### **4.3.2**

Factory-supplied supporting structures manufactured from glass shall comply with Clause 5.

#### **4.3.3**

For conducting the structural integrity test specified in Clause 5.5, the supporting structure shall be fully assembled with the lavatory or sink.

## **5 Test methods and performance requirements**

### **5.1 General**

#### **5.1.1 Preconditioning**

Specimens shall be preconditioned under ambient laboratory conditions.

#### **5.1.2 Installation for testing**

Specimens shall be installed in accordance with the manufacturer's installation instructions.

### **5.2 Warpage test**

#### **Δ 5.2.1 Procedure**

The specimen shall be placed on a flat and level surface to ascertain the amount of deviation from the horizontal or vertical plane at its edges.

If a feeler gauge of a thickness equal to the total warpage allowed in Table 1, as applicable, will not slide under the specimen unless forced, the specimen shall be deemed to comply with the warpage requirements of Table 1, as applicable.

If the specimen rocks on two opposite corners, the warpage in the horizontal or vertical plane shall be determined by placing a feeler gauge, as thick as the total warpage allowed, under a corner that does not touch the flat and level surface and then forcing the specimen down on this gauge. If a second feeler gauge of the same thickness will not slide under the specimen at any other point, the specimen shall be deemed to comply with the warpage requirements of Table 1, as applicable.

#### **5.2.2 Performance**

Fixtures shall comply with the warpage requirements specified in Table 1, as applicable, when tested in accordance with Clause 5.2.1.

### **5.3 Surface examination test**

#### **5.3.1 Procedure**

The surface examination test for lavatory or sink and supporting structure assemblies shall be conducted in accordance with Clause 5.4.1 of CSA B45.5/IAPMO Z124.

### 5.3.2 Performance

Unless part of a decorative treatment, glass lavatories or sink and supporting structure assemblies shall be free from cracks, chipped areas, and blisters. The number and size of defects shall not exceed those specified in Table 2.

## 5.4 Subsurface test

### 5.4.1 Procedure

The subsurface test for lavatories, sinks, and supporting structures shall be conducted in accordance with Clause 5.5.1 of CSA B45.5/IAPMO Z124.

### 5.4.2 Performance

There shall be no visible voids larger than 3 mm (0.125 in) in diameter below the original surface finish. The maximum allowable number of voids or projections 3 mm (0.125 in) or smaller in diameter in the conditioned area shall be four.

## 5.5 Structural integrity test

### 5.5.1 Apparatus

The apparatus for the structural integrity test for lavatories and sinks shall consist of:

- (a) a loading device capable of applying a 890 N (200 lbf) load without shock to the centre of the specimen bottom; and
 

**Note:** Calibrated weights or a suitable mechanical or hydraulic load application may be used.
- (b) pads for distributing the load, as follows:
  - (i) for fixtures with a span of 762 mm (30.0 in) or more, a 190 × 200 mm (7.5 × 8.0 in) pad to distribute the load over a 38 700 mm<sup>2</sup> (60.0 in<sup>2</sup>) area. The pad shall consist of a sheet of sponge rubber 19 mm (0.75 in) thick (Shore A durometer of 8 to 14) topped with a plate of plywood or stiffer material at least 19 mm (0.75 in) thick; and
  - (ii) for fixtures with a span of less than 762 mm (30.0 in), a pad as specified in Item (i), except that its dimensions shall be 130 × 150 mm (5.0 × 6.0 in) and it shall distribute the load over a 19 500 mm<sup>2</sup> (30.0 in<sup>2</sup>) area.

### 5.5.2 Set-up

The specimen shall be mounted in a wood frame simulating installation as follows:

- (a) the frame shall allow for clearance under the specimen for the dial gauges;
- (b) the manufacturer's installation instructions shall be used for spacing the 2 × 4 dimensional lumber of the frame and for fastening the specimen to the frame. If such instructions are not available, the specimen shall be fastened along the flange to each stud of the frame by 38 mm (1.5 in) long Number 6 steel wood screws using 10 mm (0.38 in) steel washers. The spacing of the studs in the frame shall be not greater than 406 mm (16 in) between centres;
- (c) the top of the frame shall be at least 305 mm (12 in) higher than the top of the installed specimen;
- (d) if legs or other component parts of the specimen are within 3 mm (0.13 in) of the floor line after installation, rigid vertical support shall be provided; and
- (e) if the front apron of the specimen is not touching the test frame, the apron shall be supported in a continuous bed of plaster of Paris.

### 5.5.3 Procedure

The structural integrity test for lavatories and sinks shall be conducted as follows:

- (a) Maintain the temperature of the test area and specimen at 24 ± 6 °C (75 ± 10°F).
- (b) Inspect the surfaces of the specimen. Note all defects and damage.
- (c) Centre the distribution pad over the centre of the specimen bottom.

- (d) Preload the specimen as follows:
  - (i) for specimens with a span of 762 mm (30.0 in) or more, apply a load of 890 N (200 lb) at the centre of the distribution pad;
  - (ii) for specimens with a span of less than 762 mm (30.0 in), apply a load of 445 N (100 lb) at the centre of the distribution pad; and
  - (iii) for double-compartment sinks, test each bowl based on its span in accordance with the applicable requirements specified in Item (i) or (ii) for a single fixture of comparable dimensions.
- (e) Leave the load in place for 5 min and then remove the load to permit the specimen to settle in the frame for 2 min.
- (f) Reload the specimen in accordance with Item (d).
- (g) Remove the load after 5 min and again permit the specimen to settle in the frame for 2 min.
- (h) Reload the specimen in accordance with Item (d).
- (i) Remove the load after 10 min.
- (j) Inspect the finished surface of the specimen in accordance with Clause 5.5.5.

### 5.5.4 Performance

When examined in accordance with Clause 5.5.5, lavatories and sinks shall show no damage to the inner or outer surfaces as a result of the structural integrity test. Cracking of the inner or outer surfaces, or separation of reinforcing members, shall be cause for rejection.

### 5.5.5 Surface examination

The surface examination for lavatories, sinks, and supporting structures shall be conducted in accordance with Clause 5.4.1 of CSA B45.5/IAPMO Z124.

## 5.6 Point impact load test

### Δ 5.6.1 Procedure

A 38 mm (1.5 in) steel ball shall be dropped six times from a height of 150 mm (6 in) to strike

- (a) three different points on flat areas on the top of the specimen and any supporting structures; and
- (b) the following points inside the bowl of the specimen:
  - (i) 50 mm (2 in) from the drain;
  - (ii) 100 mm (4 in) from the drain; and
  - (iii) on a sloping area of the lavatory or sink.

After the ball has been dropped six times, the fixture shall be filled with water and left standing for 5 min.

### 5.6.2 Performance

The specimen shall not break in such a way that it is no longer watertight. No evidence of leakage shall be visible while the specimen is filled with water.

## 5.7 Thermal shock resistance test

### 5.7.1 Procedure

The thermal shock resistance test for lavatories and sinks shall be conducted in accordance with Clauses 5.16.1 and 5.16.2 of CSA B45.5/IAPMO Z124.

### 5.7.2 Performance

There shall be no cracking, crazing, blistering, delamination, or spalling.

## 5.8 Lavatories and sinks with integral countertops

Lavatories and sinks with integral countertops shall comply with Clause 5.8.7 of CSA B45.5/IAPMO Z124.

## 5.9 Kitchen sinks

Kitchen sinks shall comply with Clause 5.23 of CSA B45.5/IAPMO Z124.

## 6 Markings

### 6.1 General

#### 6.1.1

Glass fixtures complying with this Standard shall be marked with the manufacturer's name or registered trademark or, in case of private labelling, the name of the customer for whom the fixture was manufactured.

#### 6.1.2

Markings shall be permanent, legible, and visible after installation.

#### 6.1.3

Acceptable means of applying permanent markings shall include firing on, etching, sand blasting, stamping with a permanent (non-water-soluble) ink, and casting in.

Adhesive labels that comply with CSA C22.2 No. 0.15 or UL 969 shall also be considered permanent when placed on a surface that is not normally submerged in water. The exposure conditions specified in Clause 7.1 of UL 969 shall apply.

### Δ 6.2 Packaging

Packaging for glass plumbing fixtures shall be marked with the

- (a) manufacturer's name or registered trademark or, in the case of private labelling, the name of the customer for whom the fixture was manufactured; and
- (b) model number.

### 6.3 Installation instructions

Glass fixtures complying with this Standard shall be accompanied by the manufacturer's installation instructions.

**Table 1**  
**Warpage tolerances**  
(See Clause 5.2.)

Type of lavatory	Warpage tolerance, mm/m
Slab	Not more than 20 out of the horizontal plane
Counters mounted	Not more than 10
Washbasins	Not more than 10

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***Glass plumbing fixtures***



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# Preface

This is the first edition of CSA B45.11/IAPMO Z401, *Glass plumbing fixtures*.

This Standard replaces CSA B45.11-04 (R2009), *Glass lavatories*, and supersedes IAPMO Guide Criteria (IGC) 172-2005, *Glass Lavatories and Sinks*.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the CSA Technical Committee on Plumbing Fixtures and the IAPMO Main Standards Committee. The CSA Technical Committee operates under the jurisdiction of the CSA Strategic Steering Committee on Water Management Products, Materials, and Systems. This Standard has been formally approved by the CSA Technical Committee and the IAPMO Standards Committee. This Standard was approved as an American National Standard by the American National Standards Institute on November 16, 2011.

December 2011

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  - (d) rationale for the change.*
- (6)** *A request for interpretation should be clear and unambiguous. To submit a request for interpretation of this Standard, you may send the following information to the International Association of Plumbing and Mechanical Officials, Attention Standards Department, 5001 East Philadelphia Street, Ontario, California, 91761, and include "Request for interpretation" in the subject line:*
  - (a) the edition of the Standard for which the interpretation is being requested;*
  - (b) define the problem, making reference to the specific section and, when appropriate, include an illustrative sketch to explain the question;*
  - (c) provide an explanation of circumstances surrounding the actual field condition; and*
  - (d) when possible, phrase the request in such a way that a specific "yes" or "no" answer will address the issue.*
- (7)** *Interpretations are processed in accordance with IAPMO's accredited standards development procedures. IAPMO issues written replies to inquiries concerning interpretation of technical aspects of this Standard.*
- (8)** *IAPMO accepts responsibility for only those interpretations of this Standard issued in accordance with the accredited IAPMO policies and procedures, which precludes the issuance of interpretations by individuals.*
- (9)** *IAPMO does not "approve," "rate," or "endorse" any item, construction, proprietary device, or activity.*
- (10)** *IAPMO does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this Standard, and does not undertake to insure anyone utilizing this Standard against liability for infringement of any applicable patents, nor assumes any such liability. Users of this Standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their responsibility.*
- (11)** *Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this standard.*
- (12)** *Attention is drawn to the possibility that some of the elements of this Standard may be the subject of patent rights. IAPMO is not to be held responsible for identifying any or all such patent rights. Users of this Standard are expressly advised that determination of the validity of any such patent rights is entirely their responsibility.*

# CSA B45.11-11/IAPMO Z401-2011

## *Glass plumbing fixtures*

### 1 Scope

#### 1.1

This Standard covers lavatories and sinks made of glass and specifies test methods, performance requirements, and marking requirements.

#### 1.2

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (nonmandatory) to define their application.

#### 1.3

SI units are the units of record in Canada. In this Standard, the inch/pound units are shown in parentheses. The values stated in each measurement system are equivalent in application; however, each system is to be used independently. Combining values from the two measurement systems can result in non-conformance with this Standard.

All references to gallons are to US gallons.

For information on the conversion criteria used in this Standard, see [Annex A](#).

### 2 Reference publications

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

#### **CSA (Canadian Standards Association)**

C22.2 No. 0.15-01 (R2006)

*Adhesive labels*

#### **ASME/CSA (The American Society of Mechanical Engineers/Canadian Standards Association)**

ASME A112.18.1-2011/CSA B125.1-11

*Plumbing supply fittings*

ASME A112.18.2-2011/CSA B125.2-11

*Plumbing waste fittings*

ASME A112.19.2-2008/CSA B45.1-08

*Ceramic plumbing fixtures*