### ASME/CSA Standard

# ASME A112.19.2-2008/CSA B45.1-08 Ceramic plumbing fixtures





®Registered trade-mark of Canadian Standards Association

## **Contents**

ASME S	tandards Committee on Plumbing Materials and Equipment viii
ASME P	Project Team 19.2 — Vitreous China Plumbing Fixtures $x$
CSA Te	chnical Committee on Plumbing Fixtures xii
ASME/C	CSA Joint Harmonization Task Group on Plumbing Fixtures xiv
Preface	XV
0 Intr	oduction 1
1 Scop	De /
2 Refe	erence publications 2
	nitions and abbreviations 3
	Definitions 3
3.2	Abbreviations 7
4 Con	eral requirements $7$
	Dimensions and tolerances 7
	Thickness 7
	Tolerances 7
	Glazing 7
4.3	Waste fitting openings, drainage, and overflows 8
4.3.1	Waste fitting openings and drainage 8
4.3.2	Overflows 8
4.4	Off-the-floor plumbing fixture supports 8
4.5	Non-vitreous ceramic plumbing fixtures 8
4.5.1	Glazing 8
4.5.2	Integral traps 8
4.6	Additional requirements for water closets 9
4.6.1	Outlet dimensions 9
	Non-standard outlets 9
	Bolt hole spacing 9
4.6.4	
4.6.5	Seat-mounting holes 9
4.6.6	Rim profiles 9
4.6.7	Water surface dimensions 9
4.6.8	Trap diameter 9
4.6.9	Spuds 9
4.6.10	Rim heights 9
4.7	Additional requirements for urinals 10
4.7.1	Integral trap diameter 10
4.7.2	Dimensions 10
4.7.3	Spuds 10
4.7.4	Materials and construction 10
4.7.5	Non-water-consuming urinals 10
4.8	Additional requirements for lavatories, sinks, and bidets 10
4.8.1	Openings and mounting surfaces for supply fittings 10

iii August 2008

4.8.2 4.8.3	Wall-mounted commercial lavatories and sinks 10 Spuds for clinic sinks 10
4.9	Additional requirements for bathtubs and shower bases 11
4.9.1	Minimum dimensions for bathtubs 11
4.9.2	
4.9.3	Flanges 11
4.10	Additional requirements for drinking fountains 11
4.11	Accessible design fixtures 11
	hing devices 11
5.1	General 11
5.2	,
	General 12
	Fill valve opening diameter and location 12
	Critical level 12
5.2.4	Low-profile gravity tanks 12
5.3	Pressurized flushing devices 12
5.3.1	
5.3.2	1 1
5.4	Plastic water closet tanks 12
5.5 5.5.1	Electrical components of electro-hydraulic water closets 12
5.5.2	· · · · · · · · · · · · · · · · · · ·
5.5.3	
5.5.4	Wiring harnesses and electrical controls 13
5.6	Dual-flush water closets 13
6 Test	ts — Materials, finishes, structural integrity, and seals $13$
6.1	Absorption test 13
	General 13
	Specimen preparation 13
	Procedure 13
	Report 13
	Performance 14
6.2	Crazing test 14
6.2.1	Test specimen 14
6.2.2 6.2.3	Procedure 14 Performance 14
6.3	Surface examination 14
6.3.1	
6.3.2	
6.3.3	
6.3.4	Other fixtures 15
6.4	Warpage test 15
6.4.1	
6.4.2	Procedure 13
	Procedure 15 Performance 15
6.5	Performance 15
6.5 6.5.1	Performance 15
	Performance 15 Field-installed flange test 15 Procedure 15
6.5.1	Performance 15 Field-installed flange test 15 Procedure 15
6.5.1 6.5.2 6.6	Performance 15 Field-installed flange test 15 Procedure 15 Performance 15
6.5.1 6.5.2 6.6 6.6.1	Performance 15 Field-installed flange test 15 Procedure 15 Performance 15 Overflow test 15
6.5.1 6.5.2 6.6 6.6.1	Performance 15 Field-installed flange test 15 Procedure 15 Performance 15 Overflow test 15 Procedure 15

iV August 2008

7.7

7.7.1

7.7.2

7.7.3

Mixed media test 22

Test media 22

Procedure 22 Report 23

6.7.2 Wall-mounted water closets 16 6.7.3 Wall-mounted lavatories 16 6.7.4 Wall-mounted urinals 16 Structural integrity test for bathtubs, shower bases, and non-vitreous service sinks 16 6.8 6.8.1 Apparatus 16 Procedure 17 6.8.2 6.8.3 Performance 17 6.9 Joint seal test 17 6.10 Auger test 17 6.10.1 Procedure 17 6.10.2 Performance 17 6.11 Condensation-free (insulated) tank test 17 6.11.1 Procedure 17 6.11.2 Performance 18 7 Water closet tests 18 7.1 General 18 7.1.1 All tests 18 7.1.2 Gravity flush tank water closets 18 7.1.3 Flushometer tank, electro-hydraulic, or other pressurized flushing device water closets 18 7.1.4 Flushometer valve water closets 18 7.1.5 Procedures for standardizing the water supply system 19 7.1.6 Test medium 19 7.1.7 Reports 19 7.2 Trap seal depth determination test 19 Apparatus 19 7.2.1 7.2.2 Procedure 20 7.2.3 Report 20 7.2.4 Performance 20 7.3 Trap seal restoration test 20 7.3.1 Apparatus 20 7.3.2 Procedure 20 7.3.3 Report 20 7.3.4 Performance 20 7.4 Water consumption test 20 7.4.1 General 20 7.4.2 Apparatus 20 7.4.3 Procedure 21 7.4.4 Report 21 7.4.5 Performance 21 7.5 Granule and ball test 21 7.5.1 Test media 21 7.5.2 Procedure 21 7.5.3 Report 22 7.5.4 Performance 22 7.6 Surface wash test 22 7.6.1 Test medium 22 7.6.2 Procedure 22 7.6.3 Report 22 7.6.4 Performance 22

August 2008

7.8 7.8.1 7.8.2 7.8.3 7.8.4 7.8.5 7.9 7.9.1 7.9.2 7.9.3	Performance 23 Drain line transport characterization test 23 Test medium 23 Apparatus 23 Procedure 24 Report 24 Performance 24 Overflow test for gravity flush tanks 24 Apparatus 24 Procedure 24 Report 24 Performance 24
8 Urir	nal tests 25
8.1	General 25
8.2	Test apparatus and general instructions 25
	Trap seal depth determination test 26
8.3.1	Apparatus 26
	Procedure 26
8.3.3	Report 26
	Performance 26
	Surface wash test 26
	Test medium 26
	Procedure 26
	Report 26
	Performance 27
8.5	
	Test medium and apparatus 27
	Procedure 27
	Report 27
	Performance 27
8.6	· · · · · · · · · · · · · · · · · · ·
	Apparatus 27 Procedure 27
	Report 28
	Performance 28
8.7	Tests for non-water-consuming urinals 28
0.7	resis for from water consuming armais 20
9 Mar	kings, packaging, and installation instructions and other literature $28$
9.1	General 28
9.2	Non-standard fixtures 28
9.3	Additional markings for water closets and urinals 29
9.3.1	Close-coupled water closets 29
9.3.2	Water consumption 29
9.3.3	Water level mark in gravity flush tank water closets 29
9.3.4	Water closet tank repair parts 29
9.4	Field-installed flanges 29
9.5	Packaging 29
9.5.1	General 29
9.5.2	Water closets and urinals 29 Installation instructions and other literature 29
9.6 9.6.1	General 29
9.6.1	
9.6.2	Urinals 30
9.6.4	Field-installed flange kits 30
, .O. I	

Vi August 2008

#### **Annexes**

- **A** (informative) Suggested formats for reporting test results 48
- **B** (informative) Unit conversion criteria 53

#### **Tables**

- **1** Permitted defects in water closets and urinals 30
- **2** Permitted defects in lavatories and drinking fountains 31
- **3** Integral trap diameter requirements for urinals, mm (in) 31
- **4** Minimum dimensions for urinals, mm (in) 32
- **5** Static test pressures for water closets, kPa (psi) 33
- **6** Static test pressures for urinals, kPa (psi) 33

#### **Figures**

- **1** Waste outlet dimensions 34
- **2** Outlet dimensions for floor-mounted bottom-outlet water closets 35
- **3** Outlet dimensions for rear-outlet and rear-spigot-outlet water closet bowls 36
- **4** Bolt hole spacing for wall-mounted water closet bowls 37
- **5** Roughing-in and seat bolt hole dimensions for water closets 38
- **6** Water closet bowl rim profiles 40
- **7** Supply fitting opening and mounting surface dimensions 41
- **8** Dimensions for bathtubs 42
- **9** Clearance for drinking fountains 43
- **10** Gravity flush tank valve openings 43
- 11 Standardization of water supply system for testing gravity and flushometer tank water closets 44
- **12** Standardization of water supply system for testing flushometer valve water closets and urinals 45
- **13** Suggested apparatus and required measurements for the trap seal depth determination test 46
- **14** Suggested drain line transport characterization test assembly 47

August 2008 VII