

**PRODUCT STANDARD (PS) 5-66
PORCELAIN ENAMELED FORMED STEEL PLUMBING FIXTURES**

Product Standard PS5-66 (supersedes Commercial Standard cs144-47), Porcelain Enameled Formed Steel Plumbing Fixtures was withdrawn on July 31, 1978.

This product standard was replaced by the American National Standard Institute/ American Society of Mechanical Engineers (ANSI/ASME) Standard A112.19.4M, Porcelain Enameled Formed Steel Plumbing Fixtures. (to obtain copies of ASME standard A112.19.4 call: 800-843-2763.)

For technical assistance and standards-related information concerning porcelain enamel fixtures contact:

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Federal Register



DEPARTMENT OF COMMERCE

National Bureau of Standards

Standard for Downloaded
Standard Document

[3510-13]

VOLUNTARY PRODUCT STANDARD ACTION ON PROPOSED WITHDRAWAL

In accordance with § 10.12 of the Department's "Procedures for the Development of Voluntary Product Standards" (15 CFR Part 10), notice is hereby given of the withdrawal of Voluntary Product Standard PS 5-66, "Porcelain Enameled Formed Steel Plumbing Fixtures."

It has been determined that this standard is technically inadequate and that revision would serve no useful purpose because the subject matter of PS 5-66 is adequately covered by the American National Standard Institute's standard ANSI A112.19.4-77, "Porcelain Enameled Formed Steel Plumbing Fixtures." This action is taken in furtherance of the Department's announced intentions as set forth in the public notice appearing in the FEDERAL REGISTER of March 31, 1978 (43 FR 13600), to withdraw this standard.

The effective date for the withdrawal of this standard will be July 31, 1978. This withdrawal action terminates the authority to refer to this standard as a voluntary standard developed under the Department of Commerce procedures.

Dated: May 24, 1978.

ERNEST AMBLER

Director

was now drawn to attention of the
and most accurate official version
of FR Doc. 78-14831 Filed 5-24-78; 4:45 am
and published in the Federal Register

Reprinted from:

FEDERAL REGISTER, VOL. 43, NO. 104—TUESDAY, MAY 30, 1978

WITHDRAWN

PRODUCT STANDARD PS5-66

(Supersedes Commercial Standard CS144-47)

**Porcelain Enameled Formed
Steel Plumbing Fixtures**

A RECORDED VOLUNTARY
STANDARD OF THE TRADE



U.S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

WITHDRAWN

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**U.S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
Office of Engineering Standards Services**

John T. Connor, *Secretary*
A. V. Astin, *Director*

EFFECTIVE DATE

Having been passed through the regular procedures of the Office of Commodity Standards (now the Office of Engineering Standards Services, National Bureau of Standards) and approved by the acceptors hereinafter listed, this Product Standard is issued by the National Bureau of Standards, effective November 1, 1966.

A. V. ASTIN, *Director*

PRODUCT STANDARDS

Product Standards are developed by manufacturers, distributors, and users in cooperation with the Office of Engineering Standards Services of the National Bureau of Standards. The purpose of a Product Standard may be either (1) to establish standards of practice for sizes, dimensions, varieties, or other characteristics of specific products; or (2) to establish quality criteria, standard methods of testing, rating, certifying, and labeling of manufactured products.

The adoption and use of a Product Standard is voluntary. However, when reference to a Product Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

Product Standards usually originate with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Office of Engineering Standards Services, the necessary data to be used as the basis for developing a standard of practice. The Office, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedures of the office assures continuous servicing of each Product Standard through review and revision whenever, in the opinion of the industry, changing conditions warrant such action.

May 1967

A D D E N D U M

PRODUCT STANDARD PS5-66
PORCELAIN ENAMELED FORMED STEEL PLUMBING FIXTURES

Add the following organizations to the list of acceptors on pages 16 and 17.

PRODUCERS

American Sanitary Manufacturing Co., Abingdon, Ill.
(General Support)
Briggs Manufacturing Co., Warren, Mich.
Kilgore Ceramics Corporation, Kilgore, Texas
Peerless Pottery, Inc., Evansville, Ind.

DISTRIBUTOR

Plumbing Mart, Inc., Moberly, Mo.
Salina Supply Co., Salina, Kans.

USER

Mechanical Construction Corporation, Hibbing, Minn.

LABORATORIES

Hommel, O., Co., Pittsburgh, Pa.
Southern Testing Laboratories, Inc., Birmingham, Ala.

STATE AND LOCAL GOVERNMENT

Wilmington, City of, Wilmington, Del.

Office of Engineering Standards Services
National Bureau of Standards
U. S. Department of Commerce
Washington, D. C. 20234

USCOM-1-NBS-DC

Porcelain Enameled Formed Steel Plumbing Fixtures

(Effective Date November 1, 1966)

1. PURPOSE

1.1 The purpose of this Product Standard is to provide a nationally recognized standard for the guidance of manufacturers, distributors, and users of porcelain enameled formed steel plumbing fixtures. The standard is intended to promote better understanding between suppliers and purchasers regarding significant features of the fixtures, and to provide a basis for fair competition in furnishing fixtures that meet the principal demands of the trade.

2. SCOPE

2.1 The standard covers materials, dimensions, construction and methods of inspection, testing, and labeling. Definitions are given for certain trade terms. The types and sizes of fixtures in general use and demand are listed for bathtubs, lavatories, kitchen sinks and sink-and-laundry-tray combinations.

3. REQUIREMENTS

3.1 **Material**—The fixtures shall be made from sheet steel and coated with porcelain enamel in accordance with the requirements of 3.2 and 3.3 respectively.

3.2 **Sheet steel**—The thickness of the sheet metal shall be No. 14 gage as shown below, or heavier, except as follows: lavatories, sinks, and sink-and-tray combinations 42 inches in length or less, and bathtub aprons, may be No. 16 gage or heavier; legs, pedestals, and other detachable or non-load-bearing parts may be No. 18 gage or heavier. Gage numbers and corresponding thickness shall be as follows:

Gage ¹	No. 14	No. 16	No. 18
Standard thickness, inch	0.0747	0.0598	0.0478
Minimum thickness, inch	.068	.054	.043

3.3 **Porcelain enamel**—An initial enamel coating shall be applied to all surfaces, and an additional separately fired coating of chemically resistant porcelain enamel shall be applied as a cover coat on the surfaces normally visible after installation. The cover coat may be applied to other surfaces.

3.3.1 **Thickness**—The total thickness of the two coatings of porcelain enamel shall not be less than 0.007² inch when measured with a calibrated magnetic thickness gage in accordance with ASTM Designation D-1186-53, Standard Method for Measurement of Dry Film Thickness of Non-Magnetic Coatings of Paint, Varnish, Lacquer and Related Products Applied on a Magnetic Base.³

3.3.2 **Appearance**—The cover coat shall be free from imperfections that adversely affect the appearance or serviceability of the fixture, except that certain minor blemishes (see 5.1) are allowable as provided under the method of inspection described in 6.1.1.

3.3.3 **Color**—The fixture, when installed, shall be of uniform color. The cover coat shall be glossy to the extent that it will have a 45° specular gloss of not less than 45 when tested in accordance with 6.1.2. If white, the reflectance of the cover coat shall be not less than 72 percent when determined in accordance with 6.1.3.

3.3.4 **Chemical resistance**—The cover coat shall be acid resistant so as to have a rating of not less than "A" when tested in accordance with 6.1.4. Also, the weight loss shall not exceed 20 mg/sq. in. when tested in accordance with 6.1.5 for alkali resistance.

3.3.5 **Abrasion resistance**—The surface abrasion index of the cover coat shall be 40 or higher when tested by the procedure given in 6.1.6.

3.4 **Warpage**—Warpage of the surfaces of fixtures that contact adjoining surfaces such as walls, floors, cabinets, or counter tops, shall not exceed 0.063 inch per linear foot, when tested in accordance with the method described in 6.2.1. Warpage of all other surfaces shall not exceed 0.094 inch per linear foot when tested by the same method. Surfaces that are curved by design are excluded from these requirements.

¹ Gage numbers and thicknesses conform to the Manufacturers' Standard Gage for sheet metal, with commercial tolerances for minimum thicknesses. (Sheets 80 inches wide and less.)

² The two coatings of porcelain enamel on the exposed surfaces of the fixtures will generally have a thickness of about 0.012 to 0.018 inch.

³ Later issues of ASTM publications may be used providing the requirements are equivalent to those specified in the issue designated. Copies of ASTM publications are obtainable from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.

3.5 **Rigidity**—Fixtures shall withstand the test for rigidity described in 6.2.2.

3.6 **Standard types and sizes**—The fixture types and sizes described in Section 4 herein are recognized as standard. The standard fixtures are those most commonly used and are recommended as affording an adequate selection for all ordinary applications and for stock. It is intended, however, that other types and sizes may be provided as needed but not carried as stock items. Use of the standard types and sizes wherever possible will be generally beneficial through simplification of production practices, improved distribution, and better service to consumers.

3.6.1 **Dimensions and tolerances**—The fixtures shall conform to the applicable dimensions and tolerances specified in Section 4. Where not otherwise indicated, a tolerance of $\pm \frac{1}{8}$ inch shall apply to the dimensions specified, and also to other dimensions given by the manufacturers. Dimensions given as maximum or minimum shall not be greater or less respectively than the specified values.

3.6.2 **Illustrations**—The illustrations, consisting of Figures 1 to 19 inclusive, are shown for convenience in identifying the various fixtures, and for locating and specifying required dimensions. The illustrations are not intended to indicate standard or required designs.

4. FIXTURE TYPES AND SIZES

4.1 Bathtubs, Standard types and sizes—

- (1) *Corner bathtubs*—Right or left concealed end containing overflow and drain outlets. Length 5 feet, width 30 inches minimum at ends and 33 inches maximum at center. Height 15 to 17 inches. (See fig. 1.)
- (2) *Recess bathtubs, wide rim*—Right or left overflow and drain outlets. Length $4\frac{1}{2}$ or 5 feet. Width 30 inches minimum at ends and 33 inches maximum at center. Height $15\frac{1}{2}$ to $16\frac{1}{2}$ inches. (See fig. 2.)
- (3) *Recess bathtubs, regular rim*—Right or left overflow and drain outlets. Length $4\frac{1}{2}$ or 5 feet. Minimum width 30 inches. Height 14 to $16\frac{1}{2}$ inches. (See fig. 3.)

4.1.1 **Bathtub overflows**—The standard dimensions for the finished overflow (after enameling) for corner and recess bathtubs, wide and regular rim, are shown in figure 4, detail "A".

4.1.2 **Bathtub outlets**—The standard dimension for all finished bathtub outlets

(after enameling) shall be as shown in figure 4, detail "B".

4.1.3 **Bathtub aprons**—Aprons shall be either integral, welded, or otherwise attached by suitable means.

4.2 Lavatories—Standard types and sizes—

- (1) *Round lavatories*—18 inches outside diameter. (See fig. 5.)
- (2) *Oval lavatories*—18 or 19 inches by 16 inches. (See fig. 6.)
- (3) *Flat-rim lavatories with ledge*—19 by 17, $19\frac{1}{2}$ by $15\frac{3}{4}$, 20 by 18, and 21 by 17 inches. (See fig. 7.)
- (4) *Lavatories with back*—Two designs are standard for the back. For lavatories with back of Design I, sizes 20 by 18 inches and 19 by 17 inches are standard; for lavatories with back of Design II, sizes 24 by 20 inches and 20 by 18 inches are standard. (See fig. 8.)

4.2.1 **Lavatory overflows**—Minimum cross-sectional area of passageway of lavatory overflow should not be less than $1\frac{1}{8}$ square inches. Location of the overflow shall be optional.

4.2.2 **Lavatory bottom drain outlets**—The finished outlets (after enameling) shall be as shown in figure 9.

4.3 Kitchen sinks—Standard types and sizes—

- (1) *Flat-rim kitchen sinks*—30 by 18, 24 by 18, 20 by 16, 18 by 16, and 16 by 16 inches. (See fig. 10.)
- (2) *Flat-rim ledge kitchen sinks*—30 by 20 to 21 inches, 24 by 20 to 21 inches. (See fig. 11.)
- (3) *Flat-rim ledge kitchen sinks, double-compartment*—32 by 20 to 21 inches, 42 by 20 to 21 inches. (See fig. 12.)
- (4) *Roll-rim ledge kitchen sink with back and single drainboard*—42 by 24 to 25 inches. Sink at right or left. (See fig. 13.)
- (5) *Roll-rim ledge kitchen sink with back and double drainboard*—54 by 24 to 25 inches. (See fig. 14.)
- (6) *Roll-rim sink, double compartment, with back and double drainboard*—66 by 24 to 25 inches. (See fig. 15.)

4.3.1 **Depth of sinks**—Sink compartments shall be 6 to 8 inches in depth. The depth of a sink shall be taken as the maximum depth of water that can be contained in a single sink compartment proper, measured without benefit of the outlet depression.

4.3.2 Sink outlets—The finished outlets (after enameling) shall be as shown in figure 16.

4.4 Sink-and-tray combinations—Standard types and sizes—

- (1) Flat-rim sink-and-tray combination—42 by 18 to 21 inches. Reversible for placing sink at right or left. (See fig. 17.)
- (2) Roll-rim sink-and-tray combination with back—42 by 24 to 25 inches. Sink at right or left. (See fig. 18.)

4.4.1 Depth of sink and tray compartments—The depth of sink compartments shall be as described in 4.3.1. The depth of tray compartments, when specified, shall be taken in the same manner.

4.4.2 Compartment outlets — The finished outlets (after enameling) shall be as shown in Figure 19.

5. DEFINITIONS

5.1 Definitions applicable to porcelain enameled formed steel plumbing fixtures are as follows:

Cover Coat—The layer of porcelain enamel applied as the final enamel coating.

Dimple —A blemish consisting of a shallow depression in the porcelain enamel.

Inspection

Window —A circle 3 inches in diameter cut from a small sheet of any flexible material such as rubber or paper for convenience in sliding over irregular surfaces to determine segregation.

Lump —A raised portion of enameled surface.

Specks

Small —Particles of foreign matter that produce a con-

trasting color area on the surface 1/100 to 1/64 inch in maximum dimension.

Medium —The same, except over 1/64 to 1/32 inch in maximum dimension.

Large —The same except over 1/32 to 1/16 inch in maximum dimension.

Craze —A crack in the enameled surface.

Waviness —The appearance of irregular surface in the glaze.

6. METHODS OF INSPECTION AND TESTING

6.1 Porcelain enamel—

6.1.1 Surface inspection for blemishes—The fixture shall be examined with the eyes of the observer about 2 feet from the surface observed. The light source shall be partially diffused daylight, or substantially equivalent artificial light with a luminous intensity near the inspection surface of not less than 100 nor greater than 200 foot-candles. No actual count or measure of blemishes should be attempted except in case of doubt, since with practice, dimensional limits and numbers can readily be gaged by the eye. Some waviness in an enamel surface is unavoidable and is not cause for rejection; other imperfections shall be limited to the allowable blemishes listed in Table 1. (See 3.3.2. and 5.1.)

6.1.2 Specular gloss—The specular gloss shall be determined in accordance with ASTM Designation C346-59, Standard Method of Test for 45 Deg. Specular Gloss of Ceramic Materials.³

6.1.3 Reflectance—White porcelain enameled fixtures shall be tested in accordance with ASTM Designation E97-55(1965) Standard Method of Test for 45 Deg., 0-Deg. Directional Reflectance of Opaque Specimens by Filter Photometry.³

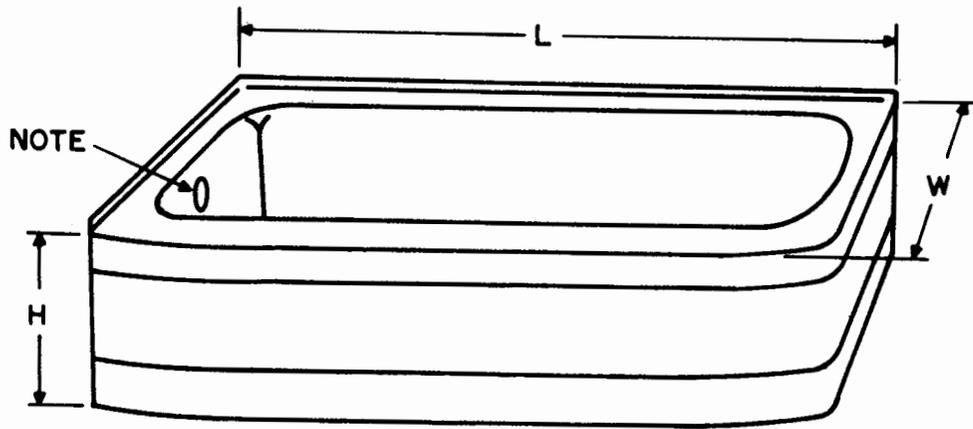
6.1.4 Acid resistance—Acid-resisting porcelain enamel shall be tested in accordance

Table 1—Allowable blemishes

Blemish	Size or Appearance	Maximum number allowed per inspection window ¹	Maximum number allowed per fixture
Specks	{ Small	2	2
	{ Medium	1	8
	{ Large	1	2
Dimples	-----	1	8
Lumps	-----	1	8

¹ Diameter, 3 inches

² Not to be counted

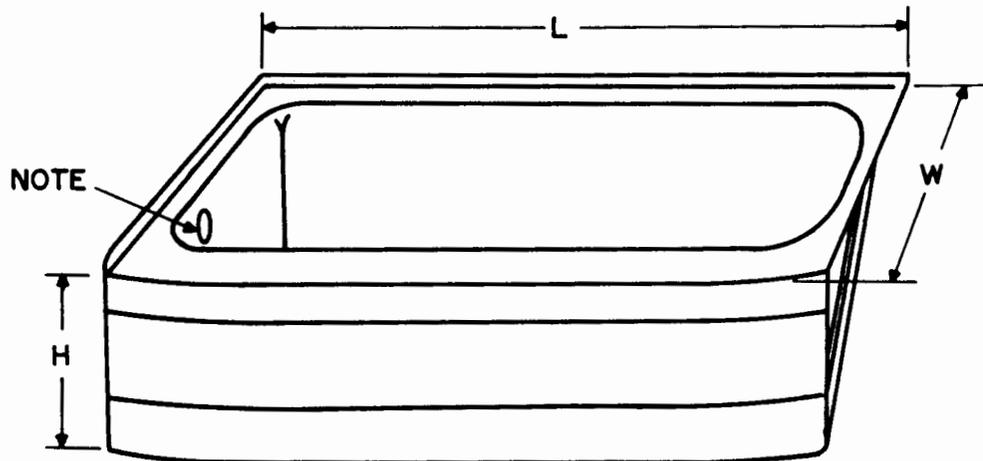


Standard size, feet Dimensions, inches

L	W	H
5	30 min.-ends 33 max.-center	15 to 17

Figure 1. Corner bathtub, right or left (4.1.1)

NOTE. See Figure 4 for Outlet and overflow details.

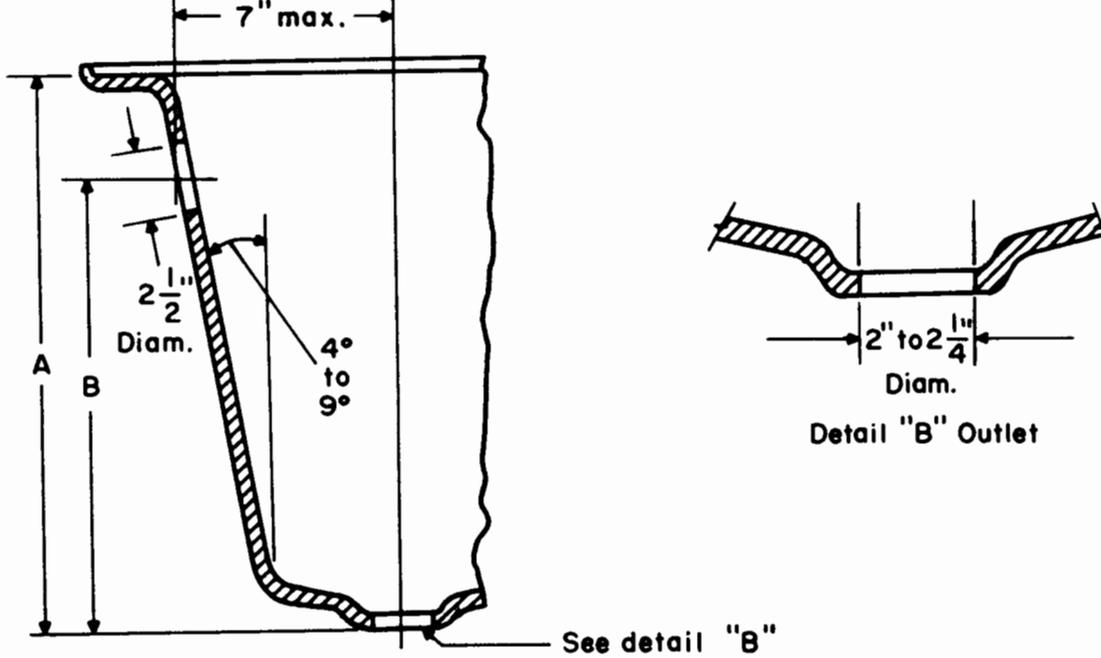


Standard sizes, feet Dimensions, inches

L	W	H
4 $\frac{1}{2}$, 5	30 min.-ends 33 max.-center	15 $\frac{1}{2}$ to 16 $\frac{1}{2}$

Figure 2. Recess bathtub, wide rim, right or left. (4.1.(2)).

NOTE. See Figure 4 for outlet and overflow details.



Detail "A" Overflow

Bathtub Fixture	Figure	A	B
Corner	1	inches 14 min.	inches 12 min.
Recess, Wide Rim	2	14 min.	11-1/2 MIN
Recess, Regular Rim	3	13 min.	11 min.

Figure 4. Bathtub outlet and overflow dimensions

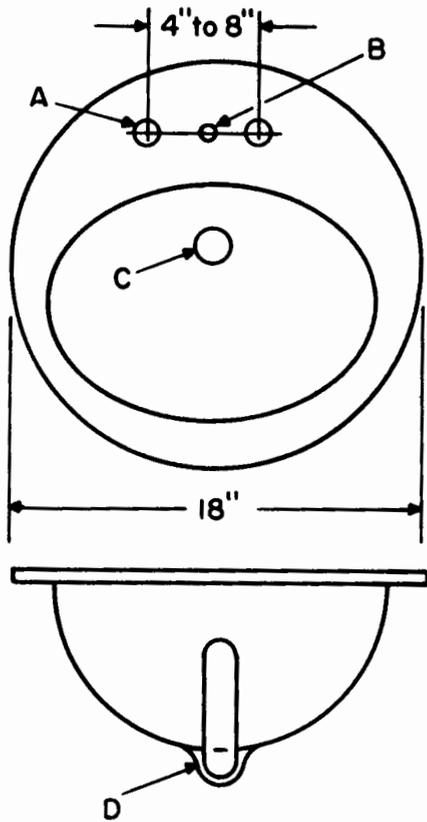


Figure 5. Round lavatories

- NOTES.** A For 4" C. lavatories—supply openings 1" min., B center hole 1/2" min.
 A For 8" C. lavatories—supply openings 1-3/8" min., B center hole 1-1/8" min.
 C Outlet. See Figure 9.
 D Overflow. See 4.2.1.

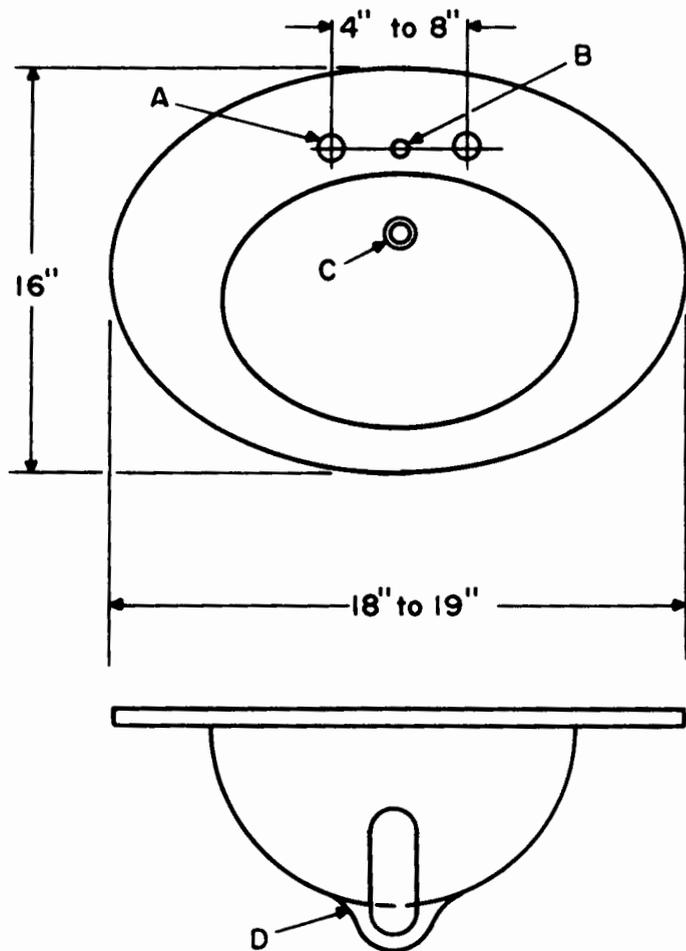
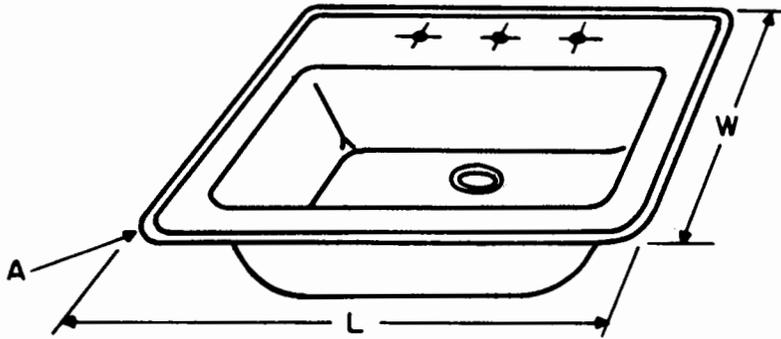


Figure 6. Oval lavatories

See Figure 5 notes for size of supply openings and details.



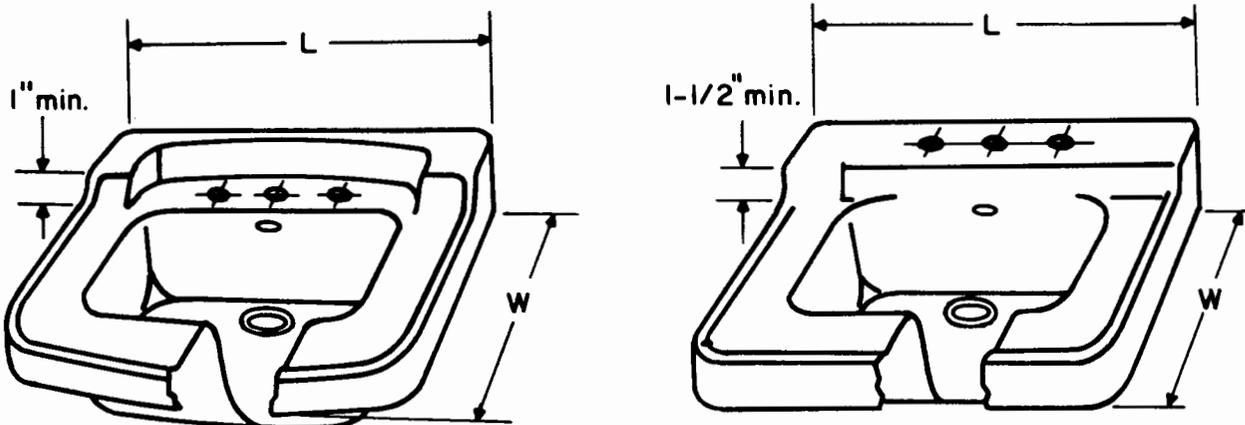
Standard sizes, inches

L	W
19	17
19-1/2	15-3/4
20	18
21	17

Figure 7. Flat-rim lavatories with ledge (4.2.(3))

NOTE. A Radius 1-5/16" minimum

See Figure 5 notes for sizes of supply openings and details.



Standard sizes, Design I
Inches

L	W
19	17
20	18

Standard sizes, Design II
Inches

L	W
20	18
24	20

Figure 8. Lavatories with back. (4.2.(4))

See Figure 5 notes for size of supply openings and details.

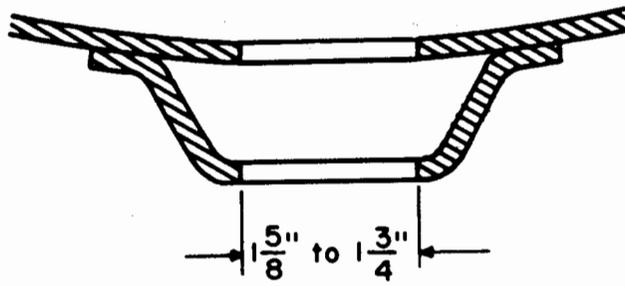
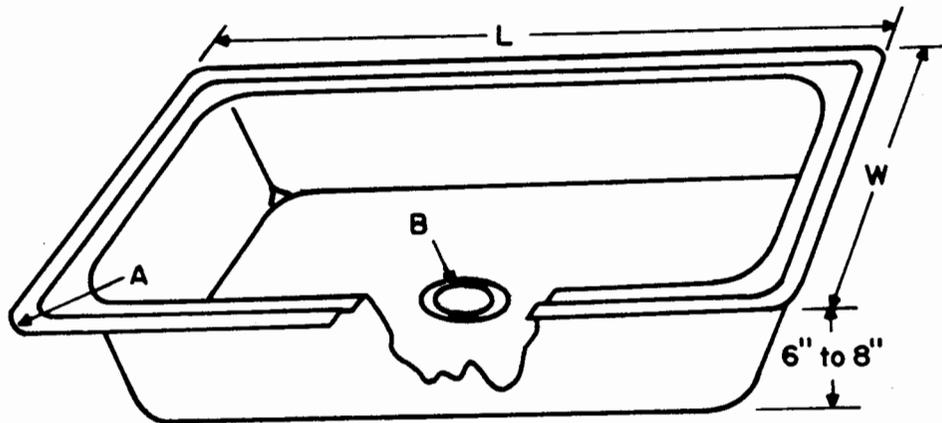


Figure 9. Lavatory bottom drain outlets



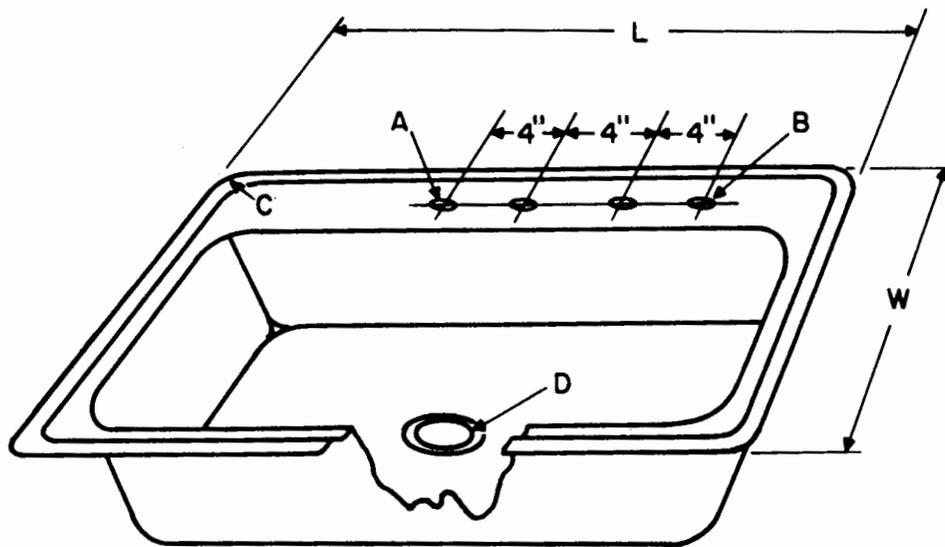
Standard sizes, inches

L	W
30	18
24	18
20	16
18	16
16	16

Figure 10. Flat-rim kitchen sinks. (4.3. (1))

NOTES. A Corner radius $1\text{-}1/2 \pm 3/16$ "

B Outlet is shown in Figure 16.

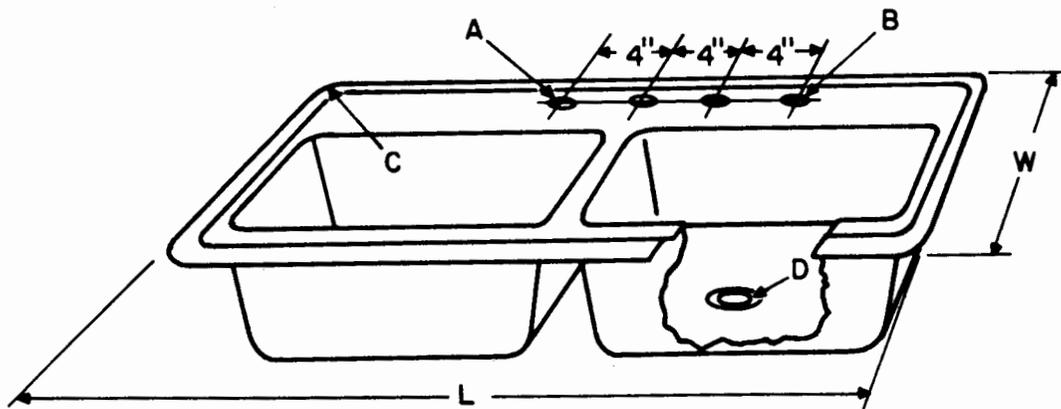


Standard sizes, inches

L	W
30	20-21
24	20-21

Figure 11. Flat-rim ledge kitchen sinks. (4.3.(2))

NOTES. A, B, C, D-See below, Figure 12.

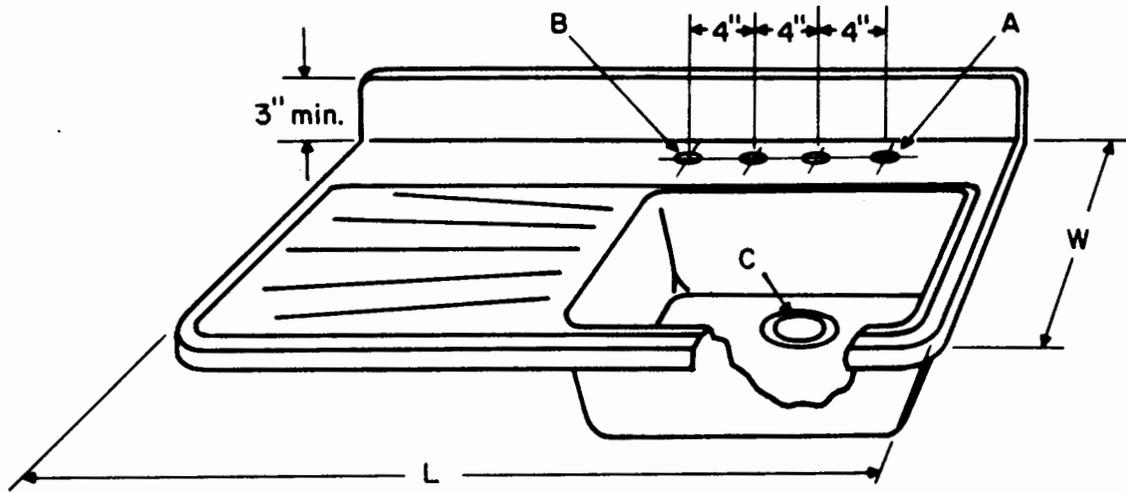


Standard sizes, inches

L	W
42	20-21
32	20-21

Figure 12. Flat-rim ledge kitchen sinks, double compartment. (4.3.(3))

- NOTES. A 3 holes $1\text{-}\frac{3}{8}\text{''} \pm \frac{1}{8}\text{''}$ diameter.
 B Spray hole size and location are optional.
 C Corner radius $1\text{-}\frac{1}{2}\text{''} \pm \frac{3}{16}\text{''}$.
 D Outlet is shown in Figure 16.

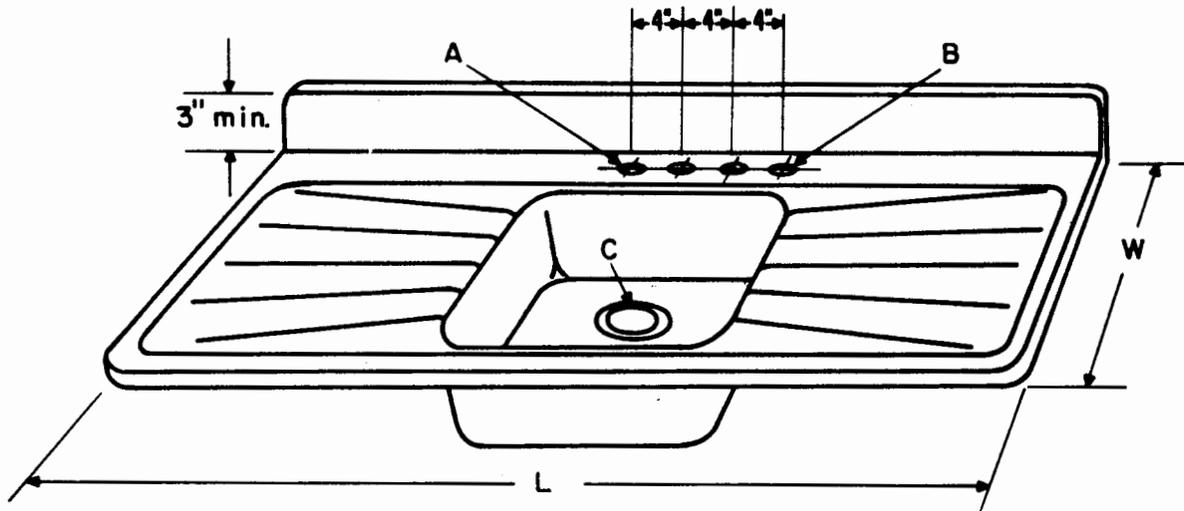


Standard sizes, inches

L	W
42	24-25

Figure 13. Roll-rim ledge kitchen sinks with back and single drainboard, right or left. (4.3. (4))

NOTES. A, B, C-See Figure 14.

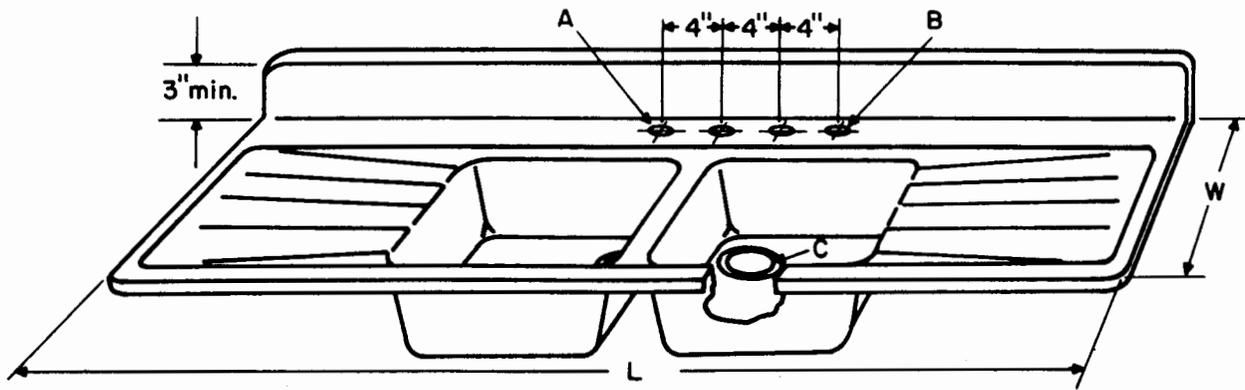


Standard sizes, inches

L	W
54	24-25

Figure 14. Roll-rim ledge kitchen sinks, with back and double drainboard. (4.3. (5))

NOTES. A 3 holes $1\text{-}\frac{3}{8}'' \pm \frac{1}{8}''$ diam.
 B Spray hole size and location are optional.
 C Outlet is shown in Figure 16.



Standard sizes, inches

L	W
66	24-25

Figure 15. Roll-rim kitchen sinks, double compartment, with back and double drainboard. (4.3.(6))

NOTES. A, B, C-See Figure 14.

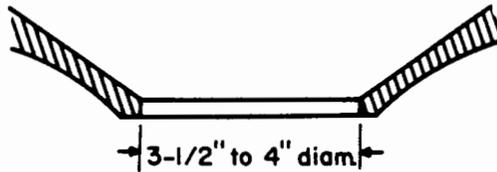
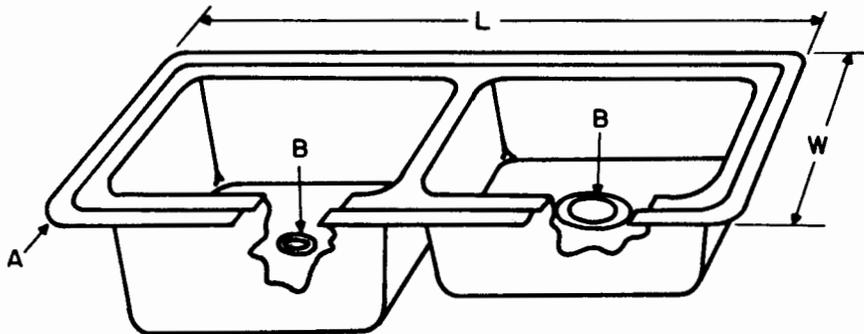


Figure 16. Kitchen sink outlet dimensions. (4.3.(2))

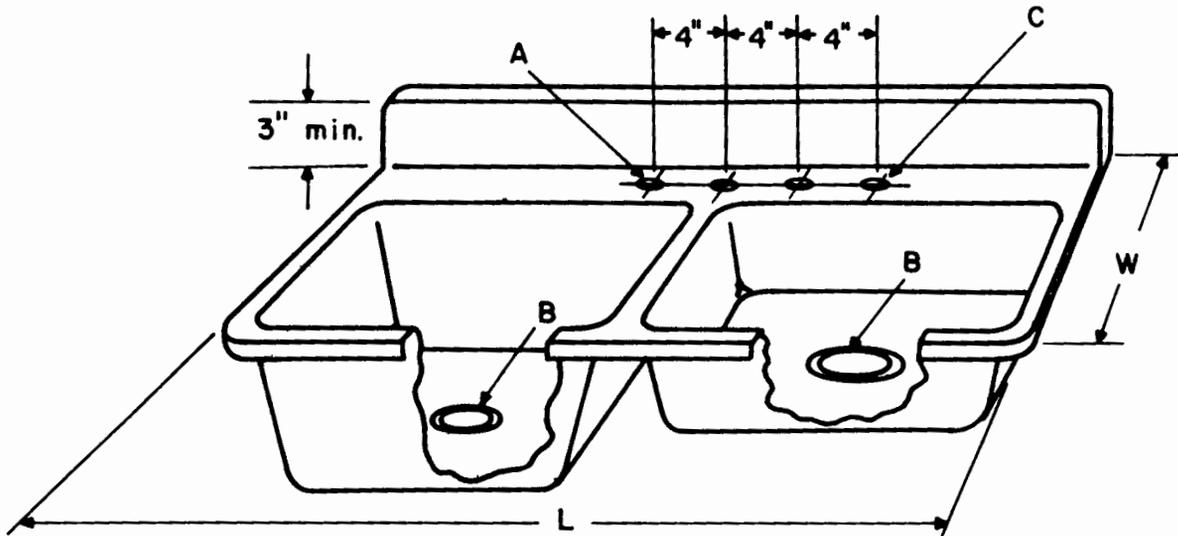


Standard sizes, inches

L	W
42	18-21

Figure 17. Flat-rim sink and laundry tray combinations, reversible. (4.4.(1))

NOTES. A Corner radius, $1\text{-}1/2'' \pm 3/16''$
 B Outlet, see Figure 19



Standard sizes, inches

L	W
42	24-25

Figure 18. Roll-rim sink and laundry tray combinations with back, sink at right or left. (4.4. (2))

- NOTES**
- A 3 holes 1-3/8" ± 1/8" diam.
 - B Outlets, See Figure 19.
 - C Spray hole size and location are optional.

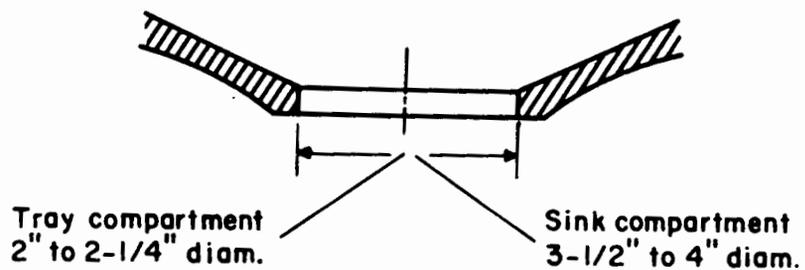


Figure 19. Sink and laundry tray combinations, outlet dimensions. (4.4. (2))

with the standard procedure described in ASTM Designation C282-65T, Tentative Methods of Test for Acid Resistance of Porcelain Enamels.³

6.1.5 Alkali resistance—Alkali resistance shall be determined in accordance with standard procedure described in Porcelain Enamel Institute Bulletin T-25.⁴

6.1.6 Abrasion resistance—Surface abrasion index shall be determined by testing in accordance with ASTM Designation C448-64, Standard Methods of Test for Abrasion Resistance of Porcelain Enamels.³

6.2 Structural tests—

6.2.1 Warp—The fixture surface to be tested shall be placed on or against a flat testing surface. If a feeler gage of thickness equal to the total allowable warp will not slide between the fixture surface and the testing surface without forcing, the fixture satisfactorily comes within the warp limitations. If the fixture surface does not contact the testing surface at all corners, the tolerance shall be determined by placing one feeler gage of the total warp allowed under a corner which does not make contact with the testing surface, then forcing the fixture against this gage. If a second feeler gage of the same thickness will not slide between the fixture surface and the testing surface at any other point, then the fixture is not warped by more than the specified maximum amount allowable under the provisions of 3.4.

6.2.2 Rigidity—With the fixture supported as in a normal installation, gently lower a weight of 300 pounds, plus or minus 10 pounds, on the fixture so as to center the weight horizontally within 5 inches of an outside corner, or within 5 inches of the middle front if the fixture is rounded in horizontal cross section. The weight shall be permitted to bear on an area of approximately 100 square inches covered by a 1/2 inch thickness of sponge rubber or other suitable soft material and a weight distribution board of the same area and 3/4 to 1 1/2 inches thick. Allow weight to remain not less than one minute and not more than ten minutes. After removal of the weight there shall be no visible permanent deformation of the fixture or the supports furnished with it, and no cracking, chipping, or other damage to the enamel.

7. IDENTIFICATION

7.1 In order to assure the purchaser that porcelain enameled formed steel plumbing fixtures comply in all respects with this Product Standard, it is recommended that the following statement be given by the man-

ufacturer, together with his name and address, on labels affixed to the fixtures. The statement may also be used in conjunction with bids, invoices, sales literature and the like.

This porcelain enameled formed steel plumbing fixture complies with Product Standard PS5-66, as developed under the procedures of the Office of Engineering Standards Services and published by the National Bureau of Standards.

7.1.1 The following abbreviated statement is suggested when available space on labels is insufficient for the full statement:

Complies with PS5-66, published by the National Bureau of Standards.

7.2 The label may be accompanied by the manufacturer's recommendation on handling, setting and cleaning up.

HISTORY OF PROJECT

In a letter dated April 28, 1965, the Porcelain Enamel Institute, nc., and the Plumbing Fixture Manufacturers Association requested the cooperation of the Office of Commodity Standards (now the Office of Engineering Standards Services, National Bureau of Standards) in the revision of Commercial Standard CS144-47, Formed Metal Porcelain Enameled Sanitary Ware, and submitted a draft of the proposed revision. The draft submitted completely revised the current standard CS144-47, primarily a performance standard for the porcelain enamel coating, and added up-to-date requirements for the porcelain enamel, the types and sizes of bathtubs, lavatories, kitchen sinks, and sink-and-laundry-tray combinations in common use and demand.

A draft of the recommended revision was prepared by the Office of Commodity Standards and approved by a majority of the standing Committee. Subsequently the Office of Commodity Standards circulated the Recommended Revision of Commercial Standard CS144-47, Formed Metal Porcelain Enameled Sanitary Ware, TS-5681, to the trade on March 18, 1966, and acceptances were received representing a satisfactory majority of the industry.

The Office of Engineering Standards Services announced on September 26, 1966 that the standard had been approved for publication and designated Product Standard PS5-66, effective November 1, 1966.

Project Manager:

D. R. Stevenson,
Office of Engineering Standards Services,
National Bureau of Standards.

STANDING COMMITTEE

The following individuals comprise the membership of the Standing Committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Office of Engineering Standards Services, National Bureau of Standards, which acts as secretary for the Committee.

M. J. Keedy, Ingram-Richardson, Inc., Frankfort, Ind. 46041

E. C. McLester, Ingersoll Products, Division of Borg-Warner Corporation, 1000 West 120th Street, Chicago, Ill. 60643

Norman Pugh, Sears, Roebuck and Company, 925 S. Homan Avenue, Chicago, Ill. 60624

J. H. Perry, Secretary, Central Supply Association, 221 N. LaSalle St., Chicago, Ill. 60602

Robert J. Cowling, Department of Professional Practice, American Institute of Architects, 1735 New York Avenue, N. W., Washington, D. C. 20006

Milton W. Smithman, Director Technical Services, National Association of Home Builders, 1625 L Street, N. W., Washington, D. C. 20036

Richard E. White, Research and Standardization Committees, National Association of Plumbing Heating and Cooling Contractors, 1011 South Michigan Street, South Bend, Ind. 20036

C. K. Kirby, Porcelain Enamel Institute, Inc., 1900 L Street, N. W., Washington, D. C. 20036

Jack Allen, Western Plumbing Officials Association, 520 Mission Street South Pasadena, Calif. 91031

ACCEPTORS

The manufacturers, distributors, users and others listed below have individually indicated in writing their acceptance of this Commercial Standard prior to its publication. The acceptances indicate an intention to utilize the standard as far as practicable, but reserve the right to depart from it as may be deemed desirable. The list is published to show the extent of recorded public support for the standard and should not be construed as indicating that all products made by the acceptors actually comply with its requirements.

Products that meet all requirements of the standard may be identified as such by a certificate, grade mark, or label. Purchasers are encouraged to require such specific representation of compliance, which may be given by the manufacturer whether or not he is an acceptor.

ASSOCIATIONS

(General Support)

American Ceramic Society, Inc., Columbus, Ohio
American Institute of Supply Associations, Inc., Washington, D. C.

American Specifications Institute, Chicago, Ill.
Building Officials Conference of America, Inc., Chicago, Ill.

Cast Iron Soil Pipe Institute, Washington, D. C.
Central Supply Association, Chicago, Ill.
Master Plumbing, Heating & Cooling Contractors Association of Norfolk, Virginia, Inc., Norfolk, Va.

Muskegon Association of Plumbing Contractors, Muskegon Heights, Mich.

National Association of Plumbing, Heating, Cooling Contractors, Washington, D. C.

Plumbing Fixture Manufacturers Association, Washington, D. C.

Porcelain Enamel Institute, Inc., Washington, D. C.
Schuylkill County Association of Plumbing Contractors, Inc., Pottsville, Pa.

Tile Council of America, New York, N. Y.

PRODUCERS

AAA Plumbing Pottery Corporation, Gadsden, Alabama
Borg-Warner Plumbing Products, Mansfield, Ohio
Challenge Stamping & Poreclain Co., Grand Haven, Mich.

Crane Co., Chicago, Ill.

Gerber Plumbing Fixtures Corporation, Chicago, Ill.

Globe Valve Corporation, Delphi, Ind.

Ingersoll Products, Division of Borg-Warner Corporation, Chicago, Ill.

Ingram-Richardson, Inc., Frankfort, Ind.

Kokomo Sanitary Pottery Corporation, Kokomo, Ind.

Lawndale Industries, Inc., Aurora, Ill.

IXL Pump & Manufacturing Co., Inc., Philadelphia, Pa.

Mullins Manufacturing Corporation, Salem, Ohio
Norris-Thermador Corporation, Plumbingware Division, City of Industry, Calif.

Plumbingware Manufacturing Company, Grand Haven, Mich.

Post, Geo. B., & Sons, New York, N. Y.

Universal-Rundle Corp., New Castle, Pa.

Wallace-Murray Corporation, Metal Product Division, Scranton, Pa.

White Products Corporation, Middleville, Mich.

Woodbridge Sanitary Pottery Corporation, Woodbridge, N. J.

Youngstown Metal Products Co., Youngstown, Ohio

DISTRIBUTORS

A & M Supply Co., Columbia, Mo.

American Plumbing & Steam Supply Co., Tacoma, Wash.

Ahrens & McCarron, Inc., St. Louis, Mo.

Bailey Lumber Co., Bluefield, W. Va.

Biggs Pump & Supply, Inc., Lafayette, Ind.

Birdsall, W. A., and Co., Linden, N. J.

Briggs Pump Co., Omaha, Neb.

Bruce-Rogers Co., Fort Smith, Ark.

Capitol Plumbing & Heating Supply Co., Springfield, Ill.

Chesco Co., Westbury, N. Y.

Columbia Pipe & Supply Co., Chicago, Ill.

Central Supply Co., Minneapolis, Minn.

Central Supply Co., Inc., Memphis, Tenn.

Clompus, I. M., Inc., West Chester, Pa.

Clow, James B., & Sons, Inc., Chicago, Ill.

Consolidated Supply Co., Portland, Ore.

Dalziel Plumbing Supplies, San Francisco, Calif.

Danser Hardware & Supply Co., Clarksburg, W. Va.

Danser Hardware & Supply Co., Weston, W. Va.

Du-Kane Supply Co., Pittsburgh, Pa.

Duro Supply Co., Bay City, Mich.

Fischler Co., New Castle, Pa.

Flannagan, Eric G., & Sons, Henderson, N. C.

Gerber, Max, Inc., Chicago, Ill.

Gibbons, M. J., Supply Co., Dayton, Ohio

Gibbons, M. J., Supply Co., Middletown, Ohio

Glick Supply Co., Inc., Marshalltown, Iowa

Globe Machinery & Supply Co., Des Moines, Iowa
 Goodin Co., Minneapolis, Minn.
 Graf & Dellwardt, Inc., Buffalo, N. Y.
 Hajoca Corporation, Ardmore, Pa.
 Hoe Supply Co., Christopher, Ill.
 Horne-Wilson, Inc., Orlando, Fla.
 Illinois Plumbing & Heating Supply Co., Springfield, Ill.
 Illinois Supply Co., Aurora, Ill.
 Keenan Pipe & Supply Co., Los Angeles, Calif.
 Kiefaber, W. H., Co., Dayton, Ohio
 Kohler Co., Kohler, Wis.
 Kretschmer Tredway Co., Dubuque, Iowa
 La Crosse Plumbing Supply Co., La Crosse, Wis.
 Laib Supply Co., Louisville, Ky.
 LaValley McLeod, Inc., Elmira, N. Y.
 Malone Plumbing Supply Co., Pittsburgh, Pa.
 Miner Supply Co., Red Bark, N. J.
 Mansfield Sanitary, Inc., Perrysville, Ohio
 Milstead Co., Austin, Tex.
 Morley Brothers, Saginaw, Mich.
 Meyer, F. & J., New York, N. Y.
 McDonald, A. Y., Manufacturing Co., Denver, Colo.
 Masters' Supply, Inc., Louisville, Ky.
 Murfreesboro Supply Co., Murfreesboro, Tenn.
 Morrison Supply Co., Fort Worth, Tex.
 Missouri-Kansas Supply Co., Inc., Kansas City, Mo.
 National Mill Supply, Inc., Fort Wayne, Ind.
 Noland Co., Memphis, Tenn.
 Plumbers Supply Co., New Bedford, Mass.
 Plumbers Supply Co., Tulsa, Okla.
 Plumbing and Industrial Supply Co., Inc., Evansville, Ind.
 Rheem Manufacturing Co., Chicago, Ill.
 Richards Manufacturing Co., Grand Rapids, Mich.
 Rundle-Spence Manufacturing Co., New Berlin, Wis.
 Salina Supply Co., Salina, Kans.
 Shirley-Onstad, Inc., Fargo, N. Dak.
 Samuel Sloan & Co., Inc., Rochester, N. Y.
 Southern Supply Co., Inc., Baltimore, Md.
 Southland Supply Co., Inc., Dallas, Tex.
 Southwestern Supply Co., Pueblo, Colo.
 Spiegel, Inc., Chicago, Ill.
 Square Deal Plumbing & Heating Supply House, Inc., Chicago, Ill.
 Sullivan County Plumbing & Heating Supply Co., Inc., Liberty, N. Y.
 Sunny Pipe & Supply Co., Phoenix, Ariz.
 Tallman, Nashville, Tenn.
 Tillman & Booth, Inc., Eugene, Ore.
 Tennessee Mill & Mine Supply Co., Knoxville, Tenn.
 Thomas Trant & Bro., Inc., Hartford, Conn.
 Tri-States Supply Co., Freeport, Ill.
 U. S. Supply Co., Kansas City, Mo.
 Universal Supply Co., Newark, Ohio
 Webb, F. W., Manufacturing Co., Boston, Mass.
 Weeks, Ralph E., Company, Inc., Scranton, Pa.
 Westchester Square Plumbing Supply Co., Inc., Bronx, N. Y.
 Williams, S. E., Supply Co., Uniontown, Pa.
 Wigman Co., Sioux City, Iowa
 Wisconsin River Supply Co., Wausau, Wis.
 Vogel, P. A., & Sons Co., Louisville, Ky.

USERS

American Sanitary Manufacturing Co., Abingdon, Ill.
 Baker, Heyward and Llorens, Charlottesville, Va.
 Belli & Belli, Chicago, Ill.
 Best, Alfred S., Chevy Chase, Md.
 Brooks-Boeg, Des Moines, Iowa
 Camlet, J. Thomas, & Son, Clifton, N. J.
 Chicago Vitreous Corporation, Cicero, Ill.

Cleveland Clinic Foundation, Cleveland, Ohio
 Coldwater Brass Co., Coldwater, Mich.
 Ewing Miller Associates, Inc., Terre Haute, Ind. (General Support)
 Ferro Corporation, Cleveland, Ohio (General Support)
 Froehling & Robertson, Inc., Richmond, Va.
 Harley, Ellington, Cowin & Stirton, Inc.
 Holdstein, Milo S., Cleveland, Ohio
 Hope, Frank L., & Associates, San Diego, Calif.
 Inland Steel Co., Chicago, Ill.
 Iowa Methodist Hospital, Des Moines, Iowa
 Jacobson, A. D., Co., Inc., Kansas City, Mo.
 McNeill & Dugger, Inc., Herrin, Ill.
 McPherson Co., Greenville, S. C.
 Mechanical Construction Corp., Hibbing, Minn.
 Methodist Hospital of Gary, Inc., Gary, Ind.
 Murphy, C. F., Association, Chicago, Ill.
 Paterson General Hospital, Paterson, N. J.
 Pearce & Kerr, Inc., Baltimore, Md.
 Speakman Co., Wilmington, Del.
 Stephan, Walter G., Miami, Fla.
 Sterling Faucet Co., Morgantown, W. Va.
 Terre Haute Master Plumbers, Terre Haute, Ind.
 Vance Industries, Inc., Chicago, Ill.
 Vogel, Willis A., Toledo, Ohio
 Wank, Adams & Slavin, Office of Fellheimer & Wagner, New York, N. Y.

LABORATORIES

American Standards Testing Bureau, Inc., New York, N. Y.
 Detroit Testing Laboratory, Inc., Detroit, Mich.
 Omaha Testing Laboratories, Inc., Omaha, Neb.
 Southern Testing Laboratories, Inc., Birmingham, Ala.
 United States Testing Co., Inc., Hoboken, N. J.

STATE AND LOCAL GOVERNMENT

Champaign, City of, Champaign, Ill.
 Dallas, City of, Dallas, Tex.
 Denver, City and County of, Denver, Colo.
 Dodge, City of, Dodge City, Kans.
 Detroit, City of, Department of Buildings & Safety Engineering, Detroit, Mich.
 Duluth, City of, Building Inspection Division, Duluth, Minn.
 Evanston, City of, Evanston, Ill.
 Iowa State Board of Control, Des Moines, Iowa
 Lewiston, City of, Lewiston, Maine
 Lincoln, City of, Inspection Department, Lincoln, Neb.
 Miami Beach, City of, Miami Beach, Fla.
 Nebraska, State of, Lincoln, Neb.
 New York, City of, Department of Buildings, New York, N. Y.
 North Carolina Division of Purchase and Contract, Raleigh, N. C.
 Savannah, City of, Department of Public Improvements, Savannah, Ga.
 Shreveport, City of, Shreveport, La.
 Sioux City, City of, Sioux City, Iowa
 Wilmington, City of, Wilmington, Del.

U. S. GOVERNMENT

Agriculture, Department of, Washington, D. C.
 District of Columbia, Procurement Office, Washington, D. C.
 Federal Prison Industries, Inc., Research and Development, Washington, D. C.
 Justice, Department of, Bureau of Prisons, Washington, D. C.